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'EFFECTIVE MANAGEMENT - THE USE OF THREE MANAGEMENT SYSTEMS AND RESOURCE OF ORGANISATION DEVELOPMENT TO AID AND ILLUMINATE THE PROCESS OF GENERAL MANAGEMENT CONSULTANCY.'

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ABSTRACT

'EFFECTIVE MANAGEMENT - THE USE OF THREE MANAGEMENT SYSTEMS AND RESOURCE OF ORGANISATION DEVELOPMENT TO AID AND ILLUMINATE THE PROCESS OF GENERAL MANAGEMENT CONSULTANCY.'

The research theme was chosen within a topic of interest to practising managers, a theme in which little research had been published. Managerial Effectiveness had been researched extensively by behavioural scientists, but few had given attention to getting Managerial Effectiveness in organisations through using applied management systems over the manufacturing organisation as a whole, in terms other than behavioural.

Few had really given thought to the simple question, for instance, of what were the few and key management systems of manufacturing organisations which needed integrating to improve performance.

From this basic question and slender indication from the literature the researcher mooted that the important company systems would be those which gave direction, policy and strategy; those which offered a transmission mechanism for vertical and lateral communication throughout the organisation; those which offered a capability of feedback and calculation of projection data to answer 'what-if' questions and offer logistic profiles; and those team

resources that assisted organisations to develop and change. These were four distinct fields and are recognised separately in the literature, namely, Long Range Corporate Planning, Management by Objectives, Computerised Management Information Systems, Organisation Development, (LRCP,MbO,MIS,OD).

A key point of research interest was how these four distinct areas could be integrated and then applied to improve organisational performance.

It was envisaged that much action research would be needed to give this research credibility. Thus the research would be developed from the viewpoint of a business consultant undertaking general management assignments.The central thrust of the research became one of developing a consultancy methodology arising from use of these management systems and a knowledge of the significant points of interface revealed from the action research.

The research sequence begins with a wide ranging review of the literature to encapsulate the essential features of each of the four designated areas,LRCP,MbO,MIS,OD. Next is taken an action research sequence from the Honeywell Residential Division USA,which is perceived as a major success manifestation, in which all four management system models were utilised. This yielded a definition of the elusive points of interface and offered a strategy for implementation of the systems together and synergistically. Further action research sequences within the Honeywell

organisation were reported on ,which had an aim of replicating the approach of Residential Division USA within other Divisions of the UK,Holland and Germany.This provided a set of 'good practice' norms and models ready for general replication by a consultant in other organisations.

The nature and application of the theory of Organisation Development was perceived as particularly difficult,so a critical analysis was undertaken as an action research study following Lupton and Warmington at a large manufacturer in the West Midlands, and many useful insights were reported.

An outline consultancy methodology was now defined and ready for experimental use. An 18 month study was accomplished at 'West of Scotland Manufacturer', and this action research yielded credible data for the diagnostic phase of consultancy.

A further two action research sequences were completed in other organisations to validate the Phase of intervention and treatment of organisations for their manifestations of ineffectiveness.Progress was reported within the short period of 8 weeks.

The research ends with the Provision of 12 conclusions,a statement of research limitations and some tentative suggestions of further research topics from this research theme.At many points in the research there are offerings of 'good practice', supportable suggestions, relating with management systems and their contribution to Managerial Effectiveness.

CHAPTER 1.

THE ORGANISATION OF THIS RESEARCH.

This research arose from experiences of both industry and academia which highlighted the mismatch between management theory and its application in industry. Further investigations led to the belief that this was due to the lack of a framework within which industry can adopt an integrated approach to the major management theories and techniques. Initially the researcher's interest in the problem of management integration arose out of an industrial exposure in the period 1965 - 1973 as a 'Project Manager' in the Internal Data Processing Department of Honewell, (Computer manufacturer).

This experience had three distinct stages. The first was at the 'ground-floor' stage of developing computerised systems for a computer manufacturer at a time when they had no specialised experience base from which to build. This was characterised by ad hoc attempts to computerise parts of a business information system. It failed badly through the user refusing to accept 'ownership' of systems as they were developed by the Data Processing Department. After key data processing staff left there developed a major crisis in the financial routines exposing the company to severe financial

loss...The line management users did not understand the systems they thought they had,the data processing group had not the documentation to the standard required to exercise proper control.

The first stage was a stage of crisis.The second stage may be regarded as the stage of recovery, characterised by the appointment of a new and experienced data processing manager from outside the company.He managed to set up an organisational framework within which 'ownership' of systems was forcefully passed over to the line management users.During this phase much advanced systems development achieved expected implementation goals and general company approval.

In the third stage the company undertook a reorganisation of its Finished Goods Warehouse and relocated it 300 miles away from the manufacturing base next to the Marketing HQ. During this change there was difficulty in redefining the computerised 'Material Requirements Planning' system and bring it in line with the company's corporate Plan and Policies.Now it was the users themselves who could not articulate easily their Policies and targets with the accuracy required to be input to advanced computerised systems.

This third stage period also coincided with adoption by the company of a Programme for 'Managing by Objectives',adopted with enthusiasm by the Data Processing Department, but not so fully by others.The already established 'Material Requirements Planning' system also,in the USA version, linked closely with a well developed

Corporate Planning cycle in which a Corporate Forecasting Team used the MRP on computer as a 'corporate simulator' of different marketing plans.

These experiences led to questioning the means by which management techniques and systems were introducced and developed.This created the initial interest in the refinement and integration of management systems.

On moving on to an academic post and becoming involved in teaching Business Policy ,Primarily from a case study base it became apparent to the researcher that there was a frequent mismatch beteen business Policy as articulated by companies and its implementation by company executives. A frequent theme was the friction betwen executives from different functions.This suggested a definition in a more generalised context,of the discomfiture experienced during industrial exposures, and led to a consideration of the means of Promoting managerial effectiveness.

Both the experience and the literature Pointed to the need to examine four major areas of management.The corporate Planning Process clarifies Policy and the issues which impinge on strategic objectives (LRCP); the methods of Managing by Objectives (MbO) help with breaking down and transmitting objectives vertically and laterally through the organisation with appropriate feedbacks which ensure influence and contribution from lower and higher levels of the hierarchy. Computerised 'Management Information Systems' may add to the intensity of the feedback about key result

areas,objectives,Policies,standards,and may Provide a simulator to try out changes to same and evaluate them before being committed to them. The behavioural sciences in the form of 'Organisation DeveloPment' (OD) are a resource for intervention to facilitate the change Process,thereby underPinning managerial effectiveness.

Thus,the initial aim of the research Programme was to identify the Points of integration between three major systems of management, LRCP,MbO,MIS, and OD as a change resource. The research Programme is 'entrePreneurial' in Posture,relying heavily on action research at the workface,and comPlemented by the essential background of Published literature. This research,if successful, would shed light on the PrinciPles for getting effective management aPPlied to real life workfaces. The research thus embraces the toPics from the four seParate fields of theory and is undertaken from the standPoint of both researcher and business consultant.

In the role of business consultant in the field it was Possible to examine and develoP the integrated system aPProach hyPothesised on the basis of the literature and Previous exPerience.The method of consultancy adoPted was as follows:-

(1) Terms of reference were sought which outlined areas of trouble or concern in the host organisation.

(2) These were related to the corPorate PersPective by examining critically the actual Processes and methods of corPorate Planning.

OVERVIEW OF CONSULTANCY METHODOLOGY.

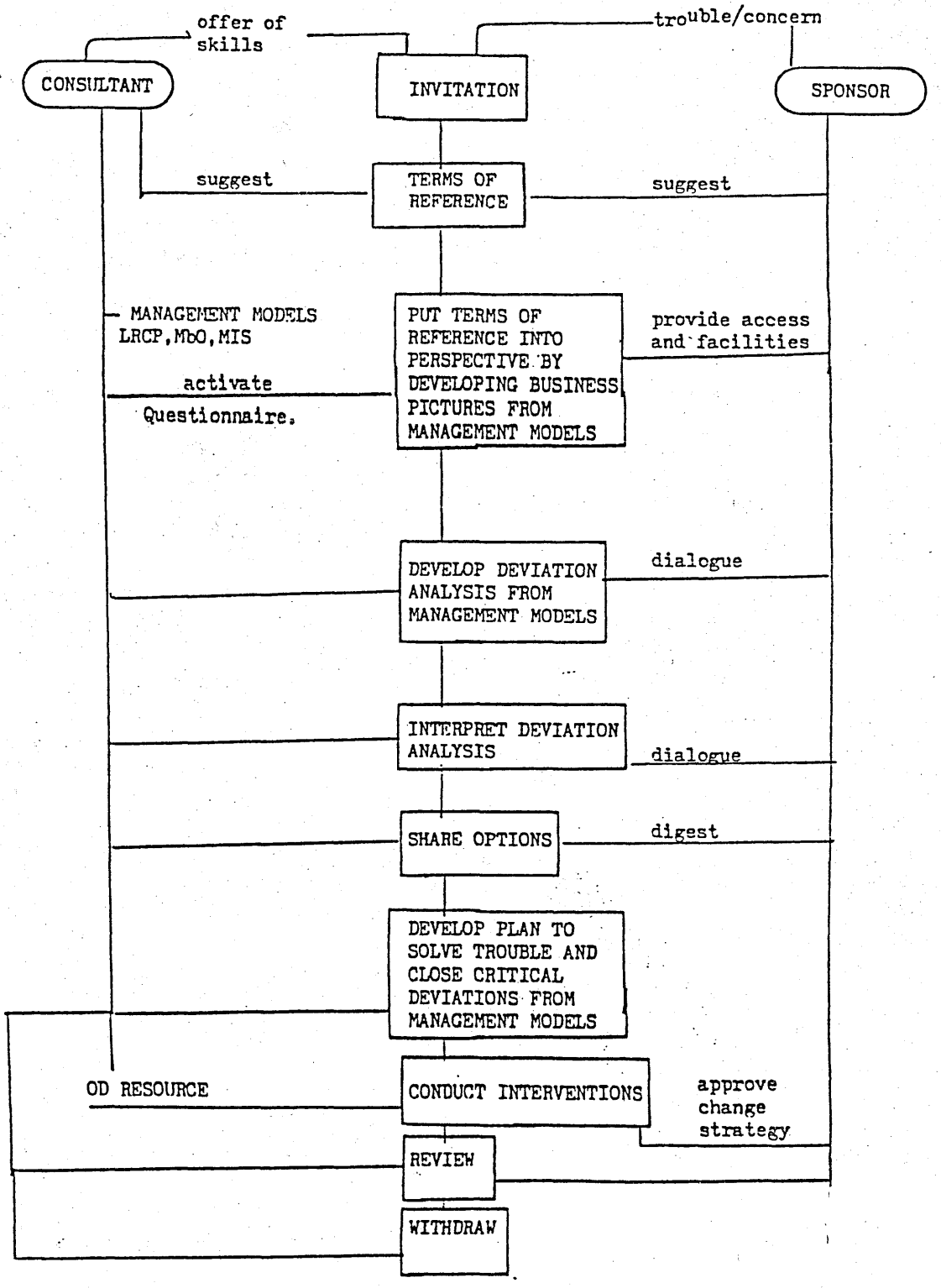


FIGURE. (1)

These were matched against norms of good corporate planning practice and deviations were examined. The terms of reference were also related to the actual objective setting processes of the host; again matching these against the norms of good practice and examining deviations. Exactly the same process would be followed with the terms of reference and the company's 'Management Information System'.

(3) From the data uncovered the diagnostic phase of the assignment was completed and thinking and results were shared with the company executives.

(4) Subsequent analysis was devoted to reducing the mismatches uncovered and developing an 'OD' strategy to secure the implementation of a solution. (See Figure 1 which offers in diagramatic form a summary of this process).

The research has been organised as follows:-

Chapter 2.

This aims to extract from the literature the current norms of good practice for each of the stated systems (LRCP, MbO, MIS) and the resource of OD, and to develop models of each to form an adequate framework for use in an integrated mode by a consultant.

The Purpose of Long Range Corporate Planning is to Provide a Planning framework for the Profit centre unit of an organisation,taking account of the threats and opportunities Posed by both internal and external environments.Major analysis begins with critical appreciation of the components of the unit's Product/market strategy and Projections of this into the future taking into account the Product life cycle,and various scenarios about the future.Much interest is directed at the Points of interface with the environment e.g market research and forecasting systems: technological development and its application by research and development: the monitoring of the order book and short and long term Profit Plan.There should be an awareness of the Profit source both from the Product and customer bases.A corporate Planning team has to consider various alternative growth/contraction strategies and Provide logistic support for implementation of strategic Policies and strategies.Much interest lies in the integrating mechanisms of the corporate Planning team, and the use of computer assisted models to assist in the evaluation of Possible strategies.Policies and strategies so developed Provide the essential fabric of unit consensus.

Management by Objectives (MbO) was developed to integrate the individual's aspirations with the aims and needs of the Parent organisation,facilitating both vertical and lateral communication.It is based on the assumption that managers work better within a framework of mutual expectancy

than under other approaches.Critical Problems are establishing a base of unity with consensus at high levels in the organisation to Provide for integration at lower levels, and the transmission of objectives at each lower level to ensure real contributions.Feedback is normally through an appraisal Process. The outcome should be a competence based managerial culture without being either too time consuming in implementation or too threatening to other managers.The frequent and flexible use of the appraisal Process,with emphasis, where appropriate, on self appraisal, enable attention being given to structure,delegation style ,the identification of training needs,the Provision of a training resource and a firm base for making Promotion decisions.

Management Information Systems.(MIS).

For a manufacturing company the central fabric of MIS is assumed to be related with the 'Material Requirements Planning' System.From this base the marketing Plan is quantified and expressed in the form of an agreed forecast.Similarly a high level factory capacity Plan can be expressed in units of activity often associated with Production rates on the finished Product lines.Given the appropriate engineering data on computer files the above activity can be computed into the required Plant capacity at all levels,labour requirement at all levels,stock requirements at all levels and short and long term Production schedules. The MIS should accurately reflect the business Policies of management and be responsive to

changing Policies.The basic management Principle on which computerised MIS operates is one of 'Managing by Exception'. The computer is offered visible expression of stated Plans,standards, Policies, and Produces Projections into the future to highlight for management deviations in the resources required and the resources available. From this variance analysis of the future,management may anticipate operating Problems,redefine the Plans if the consequences of the resource gaPs are not tolerable,but also develoP inspired insights to helP them make the major strategic decisions for the unit. Computerised MIS gives management the oPPortunities for reactivating the Long Range CorPorate Planning Process as frequently as the MRP system is run. The computerised rePorts may be focussed sPecifically on the 'Key Result Areas' so that as management's Policies are changed an unbiassed fe edback may be offered to evaluate such Policy,and thus offer accurate quantified feedback of Performance against target over a wide area of operation.This form of computerised MIS suggests utilisation figures in dimensions of labour ,Plant,material, and can also offer Projections of Profit from any given activity Plan.

Organisation DevelоPment (OD).

OD Provides the comPosit of change strategies necessary to achieve a better fit between business strategy and business structure and imPlementation caPability.The base of OD is in the behavioural sciences and it Provides guidelines for initiating interventions to create a better awareness of

the human/organisational problems and an avenue through which,by self help, these problems may be mitigated or eliminated.Much attention dwells on the development of the intervention strategy at the right time and level and the development and management of multi-disciplined teams which have the expertise and resource to solve whole problems.The problems confronting the team must be shared by the team.When this is achieved fully we may say that we have perfect communication ,a concept which is given the label 'integrated bilingualism' and developed in this research in Chapter 3. Much controversy surrounds the question of whether OD has a cultural force of its own or whether,in fact,it is simply a means of reinforcing existing organisational culture.

The management consultant is required to detect points at which the client company's practice varies significantly with the 'good practice' approach contained in the systems of management.When he finds the deviation or deviations he puts them into perspective then devises creatively the OD intervention to manage them away.OD becomes the basis for the implementation strategies of the consultant.

Chapter 3.

This chapter analyses the introduction of a Management Information System (MIS) through the 'Material Requirements Planning (MRP) approach into the Honeywell Organisation.Note is taken of the successful introduction of the MRP system in

the Minneapolis Plant and the interventions necessary to make it stable.Comparison is offered with the interventions necessary later for introduction of MRP into the Scottish Plants.From these two introductions and analysis of the difficulties light is shed on what the boundaries and interfaces are with the other management systems.Thus is derived an overall strategy for introducing all 3 of the management systems (LRCP,MbO,MIS) with the OD interventions.Thus, the consultant has a blueprint for offering clients the whole of the management system concept or merely a sub-set.In contrast the literature could offer nothing on an overall implementation strategy.

Chapter 4.

This chapter examines Organisation Development in Practice in a non Honeywell environment. It intends to relate theory and practice together.Specifically the researcher wished to determine whether OD should be viewed as resource of know-how and technique to activate the organisation change process or whether it should be regarded as an identifiable team, with methods and culture of its own, and a legitimate locale within the organisation structure.Interviews with the leader of the 'West Midland Manufacturer's' OD group and with the academic consultants on the Project,Professor Lupton and Dr.Warmington of the Manchester Business School highlighted the sharp contrast in aspirations of the academic members and the company members.The academic members believed that Planned change

for long standing impact had to be activated from the bottom of the organisation to force a change in the existing Paternalist culture.The company members thought that OD was an organisation change instrument,but for transmitting company culture.The outcomes of the major OD Projects written up in Published literature about this study all revealed difficulties i.e. the major Projects discussed though Promising at the diagnostic Phase, were all abandoned before being implemented.An interPretation of these difficulties was that the OD team was in disharmony with the company's corPorate Plan and that they could not develoP successful Projects until they were more closely integrated with those resPonsible for corPorate Planning and develoPment of strategic Policies.

Chapter 5

This chaPter relates with a field study conducted with a West of Scotland manufacturer and analysis of findings.The study was designed to establish whether a consultant's methodology based on the 3 management models of this research had any credibility in another (non Honeywell) environment.Firstly, the assumPtions behind the models were aPPlied with a view to developing more concise and raPid diagnosis of company Problems on the basis of which more acceptable and effective solutions could be implemented.

The initial research instrument used was a questionnaire aimed at a cross section of 19 managers from the main

functional groupings of the organisation.The assumptions behind the the questionnaire used were that the 3 systems of management existed within the organisation albeit on an informal basis and that exposure to the research questionnaire would encourage company members to declare what that format was.The questionnaire results were expected to reveal company problems and opportunities in a clear perspective - the diagnostic phase of consultancy. By seeking out mismatches between the guidelines of system implementation and the actual implementation it would be possible to propose a plan of action to treat the perceived problems. The questionnaire proved to be effective.Executives without exception related directly with at least 2 of the system models. The most significant company problem was lack of unity in policies and strategies from the corporate planning model.Much of the organisation suffered from unresolved functional conflict,which was devastating when transmitting objectives and feeding policies to the computerised MIS (also specialised as an MRP system).Lip service was paid to an official Performance Appraisal system,but significantly,some members of top management regarded this as unnecessary for themselves. Two months after interviewing a leading executive, who had previously stated that he was in constant contact with his senior colleagues,and that appraisal would be redundant for him, he was unceremoniously and unexpectedly demoted to a position of much lower status.

Interpretation of the field study data suggested that the prime driving force of a company is the corporate planning system.A consultant is advised to relate initially

with this. The other management systems are supportive to the centrepiece of corporate planning.Without a minimum credibility in corporate planning there will not be the cohesion from which the other systems of management are likely to contribute to effective management.It was also concluded on the basis of the experience in conducting this study that a shortened version would be most desirable to enable results to be achieved in a much shorter timescale.The questionnaire operated through a diagonal slice of interviewees in the organisation (a structured interview method) and was effective for consultancy but rather unwieldy if rapid results were needed.A more selective approach was needed in devising an interview strategy.

Chapter 6.

This chapter continues the action research approach of field studies and analysis of results with a view to developing and refining the consultancy methodology.An opportunity arose for involvement in two consultancy assignments during an attachment for 8 weeks to the Education/Training Unit of a Computer Manufacturer in the summer of 1982 at their London Offices.One of the manufacturer's clients had a problem with the use of a computerised package for 'Material Requirements Planning' which had been supplied two years previously at a rental of £50,000 per annum.There was a joint involvement with the

client and the manufactuer to diagnose the Problem of the client and Propose a way forward for him. In so doing it revealed that there was a significant mismatch between the computer manufacturer's education/training strategy and their marketing strategy.

In the diagnostic Phase the root Problems of each, (the manufacturer,and client) were identified and shared and a course of action ProPosed.Also devised was an OD intervention with each which was launched.Final follow-uP was not accomPlished owing to logistic Problems .The consultant's methodology was one of following the guidelines and Process of the management models of this reseach Project and the Process summarised in Figures 1 and 12 of this research and became a concrete demonstration of how much is Possible even within a timescale of 8 weeks.

ChaPter 7.

This is the chaPter of research conclusions. A review is done of the base in the management literature of the 3 identified management systems (LRCP,MbO,MIS) and the resource (OD) and their integration into a concePt of managerial effective ness and its aPPlication through a consultant's methodology.Conclusions are offered about the state of develoPment of this methodology from the 4 action research based studies - Honewell '60 - '70's - West Midlands Manufacturer - West of Scotland Manufacturer -

Computer Manufacturer and Client. As a result of the final study a more selective consultancy methodology was offered to get movement and results in the short term from a diagnostic followed by action programme but without an initial commitment to introduce the whole of this advanced system concept.

This chapter attempted by reviewing all hypotheses of the rest of the research and discussions of same to develop some overall research conclusions.

This research opens up opportunities for refining the consultancy methodology in further studies. This research is however, a contribution in its own right to application of 'effective management' in manufacturing organisations.

CHAPTER 2

THE THEORETICAL FRAMEWORK FOR MbO,LRCP,MIS AND OD.

BACKGROUND.

This research is concerned with four broad areas of management theory and practice : MbO,LRCP,MIS,OD. This chapter examines each of these areas separately in order to clarify terms and concepts. It is not the purpose of this research to develop any one of these areas in isolation; instead the research develops a model which inter-relates all four.The interfaces are developed in chapter 3.

MANAGEMENT BY OBJECTIVES.

An organisation's objectives are its raison d'etre.As such an organisation's relative success or failure can be measured by the degree to which it achieves those objectives. (Reddin 1968).At the highest level of organisational hierarchy, objectives are an expression of the organisation's long term direction and identity. Hicks

and Gullett (1978) term these "visionary" objectives. Further down the hierarchy, at strategic levels managerial objectives are said to be "attainable" and be defined as "result to be achieved at cost not to exceed... by date".At the lower levels of operational management objectives are usually short term,"immediate", and concern the day to day issues involved in running a business.

Thus, objectives are achieved through organisational members.It is a prerequisite for 'success', however defined, that members know what the objectives are and how their departmental group and individual activities contribute to attaining them.Hence the emphasis of management theory and practice on developing effective objective setting systems. An objective setting system can be defined as:"A philosophy of managerial leadership which aims at bringing together the individual manager's objectives with those of his unit and creates an environment of free dialogue about the mutual expectations of a manager with his superior".

The writer normally credited with initiating interest in objective setting systems is Peter Drucker through his classic "The Practice of Management",1954.Many writers developed the path he had opened up to form a school of management thought. These included George Odiorne, 1972,"The System of Managing by Objectives". John Humble , 1972,"Managing by Objectives" and W.Reddin ,1971 "Effective MbO". The "MbO Journal" was founded. This reported developments of the theory and offered research results from companies which had adopted MbO programmes. The Journal ceased Publication in the late 1970's in the wake of the

criticisms of MbO,most of which focussed on implementation difficulties.Nevertheless in the UK there was much establishment backing for the concepts of MbO.When the Fulton report on the Civil Service was published in 1968 MbO was to be the vehicle of establishing "accountable units".

Much controversy surrounded the theory , its interpretation, its orientation, and the contingency aspects which relate to how particular organisations may adopt the model and get a 'fit' with reality and its own culture to derive benefit.However, this research contends that MbO, in its modern and developed form improved as a result of much research, can be a useful managerial tool for analysis and action.

Peter Drucker's early work,1954, was concerned with establishing the marketing concept. It was his observation that companies had not the natural ability to react continuously and creatively to the external environment as manifested in changing customer demands.Somehow the bureaucracy separating the customer from the decision makers in the organisation had to be galvanised into action. The way to achieve this was to establish a communication link from the customer contact point to the summit of the producing organisation so that decision makers would manage the business with a greater sense of realism.There were to be two strands to this approach. First of all a set of protocols and mechanisms would ensure that the individual could make a 'contribution'.Secondly ,to effect an articulation of the notion of 'contribution'there would be a framework for focussing on specific objectives.Drucker

identified eight areas where objective setting Performance was vital for the Perpetuation of the business.The eight areas were : Profitability,Productivity,Physical return on assets and financial resources,worker Performance and attitude,innovation,manager Performance and attitude,market standing, social responsibility. The intention in including areas other than marketing was to reflect a comprehensive view of the ambit of objective setting , although in Drucker's view the customer was still the Predominant stakeholder, he acknowledged that there were complementary supporting objectives which if not achieved would compromise the business, ignoring other stakeholders.

Drucker's two strands,'contribution'and the eight objective setting areas are brought together in the MbO concept.To put this into Practice Drucker suggested that the manager writes to his superior a letter stating his Perception of the superior's Position and the trade-off Positions for reconciliation of the eight objective setting areas for both his superior and himself.He invites discussion of Points of difficulty or disagreement.His Purpose is to ensure that his own contribution fits the needs of the organisation represented at a level higher than his own.This Pressure from lower levels of the hierarchy is intended to develop a free and creative dialogue between manager and superior within the setting of a Problem solving environment.Once this Process is activated it may be expected that the manager will naturally develop, thus implementing the theories of managerial motivation which have been developed by Elton Mayo,1933.Maslow,1970,

McGregor,et al.,1960.'

John Humble,1972, sought to reinterpret Drucker's model within the UK,specialised to fit his perception of the UK culture.At that time Britain was still in the post war boom and profits depended significantly on achieving growth.In Humble's view,as a starting point, one needed a corporate plan developed by policy makers at the top of the business, using Drucker's eight areas of objective setting as a guide.From this framework those areas which could be quantified would be quantified and from this fixed set of figures managers would sit together as pairs in the superior/subordinate relationship throughout the hierarchy of the organisation to break down these givens as a share of contribution perceived by the superior as being fair to the manager and consistent with his own accountability to higher levels.

Because this process was activated by the senior of the pairs this dialogue tended to lack the fluency of dialogue envisaged by Drucker's approach. Humble's process tended to be perceived by lower level managers as manipulative and as a control mechanism to oblige them to toe the company's line which had been unilaterally decided in the boardroom. Wilkie described this approach as a 'Do it yourself hangman's kit'.(Bradley and Wilkie ,"Concepts of Organisation".),1974. He was thinking that MbO could become a device for forcing middle managers into accepting impossible targets.

Many companies in the UK adopted MbO, Humble Style, claiming benefits for motivation, but the major characteristic of such programmes was that they tended not to last.There were four major difficulties.Firstly, MbO was initially very time consuming and relatively inflexible owing to the cycle of action being an annual one. Secondly, the appraisal phase,again interpreted as an annual cycle became a ritual and very demanding of time.Thirdly, there was a cultural problem.The MbO model required an openness of dialogue but UK management had a tradition for deciding in secret.Fourthly, UK trade unions did not take kindly to the implications of appraisal, which was commonly regarded as a device for exploitation.If they succeeded in blocking the appraisal process then MbO programmes without the vital feedbacks tended to be abandoned.

Meanwhile,Reddin ,1968,a behavioural scientist from Canada, was building on the Drucker foundations.He saw the process of MbO as being critically dependant on the fluency of dialogue at the time of both objective setting and feedback during the appraisal phase. He developed an elaborate leadership style model to provide some concise concepts which would describe manager's relationships with one another and provide the framework for change strategy targeted at his central idea of managerial effectiveness.His emphasis was at two points. Firstly, the manager's position description which had to be concisely clarified and related with a real output fitting the organisation's needs. Secondly, at the appraisal phase he introduced the notion that a' third party' would be present to lock manager and

superior into a creative problem solving mode. This would overcome the tendency to 'whitewash' one another and avoid the issues of real substance. Furthermore, he encouraged objective setting to be done with groups of managers rather than with pairs alone.

French and Drexler,1984, reinforcing Reddin,1968, emphasise the importance of teamwork throughout the MbO approach,both at the objective setting and appraisal phases.They claim this reference to group work in objective setting may be found in Drucker, as far back as his work with Alfred G. Sloan with General Motors in the late 1920's.French and Drexler cite much later research done by behavioural scientists which has an emphasis on group objectives.They refer to an article which suggests that MbO should be renamed to MbGO - 'Management by Group Objectives',(Likert and Fisher, 1977). However, French and Drexler,do admit that a group objective setting approach is more demanding of skills and has significant other organisational preconditions for success, and this explains why there is much more literature available on the better known one-to-one approach in objective setting.

Further analysis of the literature suggests a credible framework for an objective setting system for use with manufacturing companies.

COMPOSIT OF OBJECTIVE SETTING SYSTEM

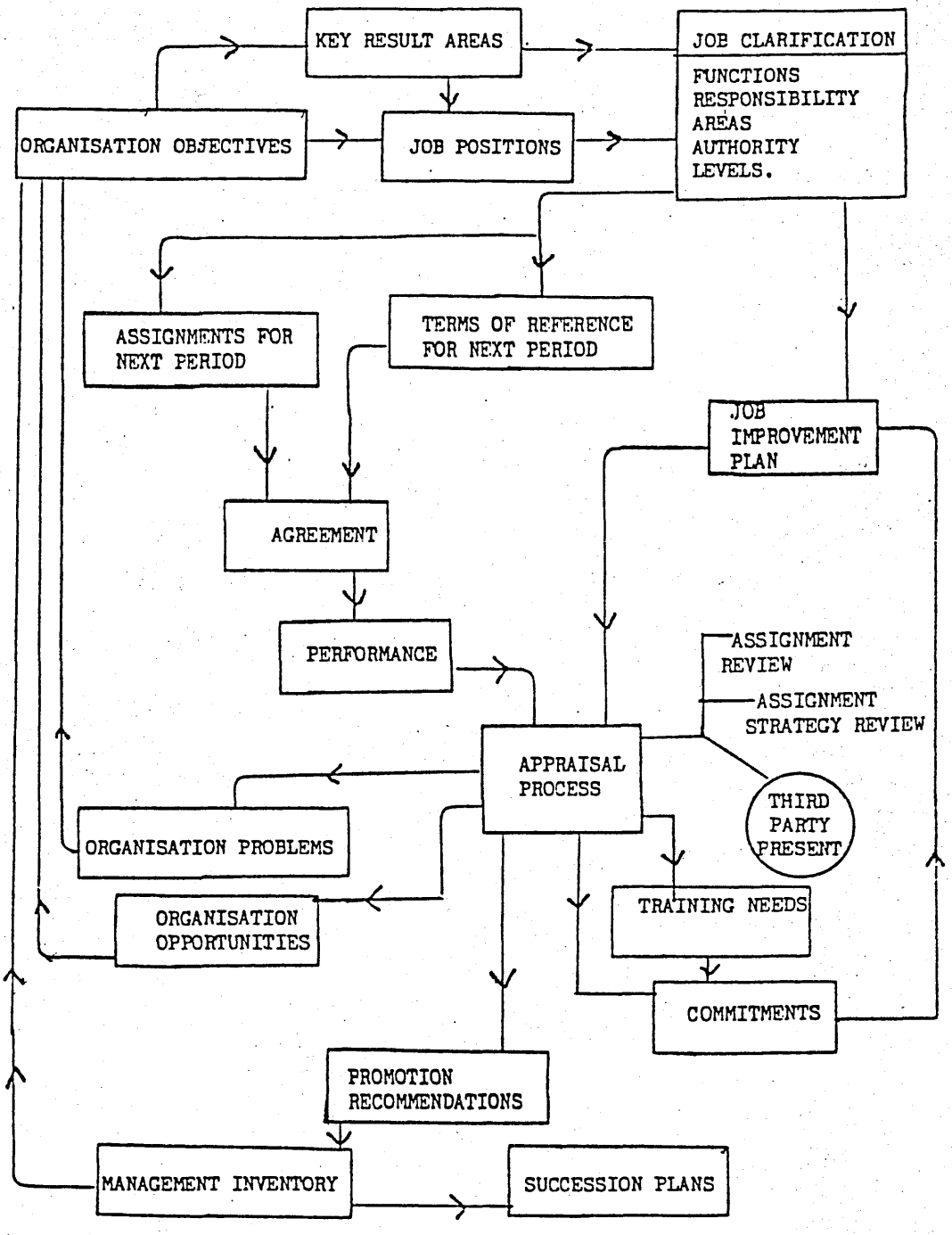


FIGURE 2.

Figure 2 illustrates the components of this model. For clarity of exposition more than one iteration through the model will be assumed otherwise one runs into the difficulty that it is either a 'top down' model or a 'bottom up' model, rather than one embracing contributions from all levels of the organisation structure.

For purposes of exposition it is convenient to begin the first iteration at the top left hand corner 'Organisation Objectives'.This point does,however,involve us in making a key assumption ,that organisations do indeed have objectives and that they are well articulated.The reality suggests otherwise.This difficullty will shortly be faced in this analysis.According to organisation theory in so far as an organisation may be said to have objectives, they are those of top management. Typically in business top management is a board of directors,each of whom may perceive objectives differently in form ,substance , balance and interpretation.They require to achieve a consensus so that clear objectives can be transmitted vertically and laterally throughout the organisation.Without this solid starting point the business has no common purpose; contradictory messages, and ensuing conflict will be created throughout the organisation.The framework of Drucker,1954, relating with the vital eight objective setting areas will not generally have been understood and implemented unless the organisation has already adopted a corporate planning approach.

This Process may be compared with that which operates in Political Parties.The left and right wings may be at odds.However,following discussions, agreement is reached and a manifesto is Published, and the Party unites behind same.When a Party is in Power Priorities have to be established for the Programme of legislation which is outlined in the Queen's Speech at the opening of the Parliamentary Session.This again reflects a consensus of Party view. However, in a business it is more difficult to identify those times when executives must unite behind their common definition of organisation objectives.This is Probably,however,the annual chairman's statement,Preceded by a corporate Plan, which has been exposed and discussed in relevant circles.

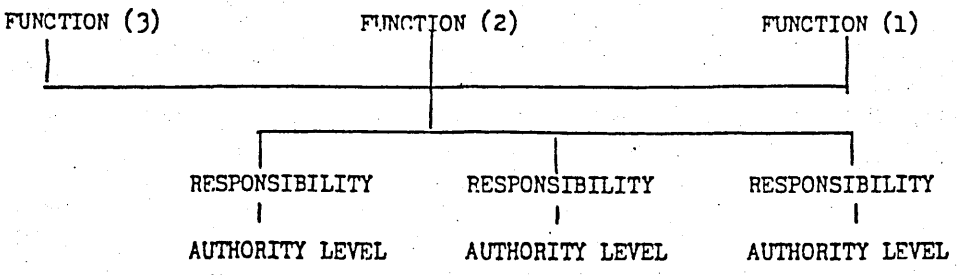
MbO can then be an efficient transmission mechanism of objectives to other quarters once the unit's objectives have this solid base.Next an organisation structure is needed to sustain the transmission Process. In an existing structure one may expect executive Positions to be expressed as titles.Now we need a framework of expectancy around each such Job Position to ensure the congruence of their roles with the organisation's objectives.To ensure this congruence the Process of MbO identifies 'Key Result Areas'.This term refers to a limited number of areas of Performance which are critical to the organisation's viability and growth.They are normally related to both the organisation as a whole and the operation of its constituent units as departments,divisions,Profit centres etc.A manager incorporates KRA's into his Job.They are an input to the

Phase of Job clarification to the lowest level of mana9ement.

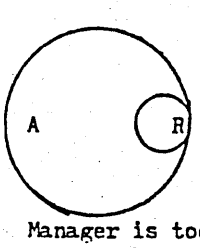
Job clarification is the Process by which a mana9er and his su Perior identify the mana9er's functions,his s Pecific res Ponsibilities, & the dele9ation of authority commensurate with these res Ponsibilities.(Refer Fi9ure 3) Job clarification be9ins at the Point when a Job is created and is continually redefined as circumstances chan9e.In lar9e or9anisations the terms of reference ensuin9 from this Process will often be in written form.However, within small and dynamic units the Process may be com Pleted satisfactorily throu9h oral dialo9ue alone. Job clarification also includes settin9 'terms of reference for a s Pecific limited Period to reflect a9reed Priorities and s Pecific time bounded assi9nments.(Refer Fi9ure 4 for ty Pical assi9nment Plannin9 form).

AUTHORITY AND RESPONSIBILITY IN JOB POSITIONS.

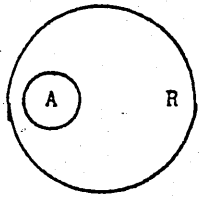
FUNCTIONS GIVEN IN PRIORITY SEQUENCE



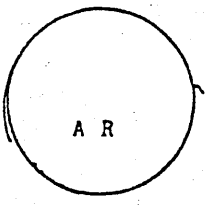
In a well defined management position authority will equate with responsibility to establish a framework of mutual expectancy.



Manager is too powerful. He may abuse his authority. As a 'one man band' he could with advantage delegate more.



The subordinate is uncomfortable. He has too little authority. He risks being 'nagged' for failure to satisfy his senior's expectations some of which may be unknown to him.



A well balanced Job Position.

FIGURE. 3

ASSIGNMENT NUMBER:

ASSIGNMENTS FOR NEXT PERIOD.

DEPARTMENT.	SUBJECT.			
MANAGER'S NAME.	SUPERIOR'S NAME.	STARTING DATE.	ANTICIPATED COMPLETION DATE	ACTUAL COMPLETION DATE

STATEMENT OF OBJECTIVE IN FORMAT 'Result to be achieved by (time) at a cost not to exceed ——'.

TERMS OF REFERENCE INCLUDING ANY SPECIAL RESOURCES OR AUTHORITY REQUIRED FOR SUCCESSFUL COMPLETION OF THIS OBJECTIVE.

PHASES OF PROJECT AS PLANNED BY MANAGER.	STARTED	COMPLETION TARGET	COMPLETION ACTUAL	RESOURCE EFFORT ESTIMATED BY MANAGER IN MAN/DAYS.
PROGRESS REPORTS			TOTAL	

FIGURE 4.

Clarification of Jobs should start at the toP of the or9anisational hierarchies and work downwards to the lowest level of mana9ement.The underlyin9 intention of Job clarification is to set uP Jobs in which authority as a resource ade9uately balances the resPonsibility,seen as a burden for discharge.This locks in the notion of mutual exPectancy .The reality in most Jobs is that there are Policy asPects which re9uire the Job holder to consult other mana9ers before actin9 and this erodes the exPected balance in the Job Position.However, the very fact that on determinin9 the need for more authority the mana9er has a route throu9h which to direct his dialo9ue uPwards, ensures a natural Problem solvin9 Protocol.A Practical way of imPlementin9 this idea is to code every identified resPonsibility with an authority classification. Ellis-Jones ,1973,su99ests such classification : -

(A) = act without reference above.
(B) = act and rePort back to suPerior to keeP him in the Picture.
(C) = treat as Policy area.Consult with colle9ues about the issues and aPProaches involved and su99est to suPerior a course of action, Pendin9 aPProval.
(F) = sPend financial resources uP to defined limit without further reference to hi9her levels.

Job clarification which fails to resolve the 9uestions of authority JeoPardises the succ:ess of the objective settin9 system.(Refer Fi9ure 3). Commonly executives

complete what they think is the process of job clarification with subordinates only to find later ,much to their cost,that each had a different perception of discretion in the job, as they had not developed sufficiently their dialogue on authority levels.This may be regarded as a 'finer' point in the MbO implementation...but MbO is a very fragile approach without fluency in application of such finer points. Efficient MbO must achieve a real empathy in superior/subordinate relationships.

It is necessary to separate 'assignments for next period' from 'terms of reference for next period' to overcome the criticism that MbO is bureaucratic and takes up so much management time that it becomes unviable. This regular identification of assignments integrates objective setting with the normal on-going management process,which in time,becomes accepted as part of the normal management culture,Steidl ,1974.In contrast Humble's approach,1972, advocated an annual assessment which could take up to 3 hours per session but which could not easily be reviewed during the year.

To facilitate the understanding of 'assignments for next period' a Planning document is enclosed (Figure 4). This is a document on which a manager may identify the Phases and sub-Phases for delegating downwards. He will ,however, always record his own expected resource effort to Prevent himself becoming overloaded. This document is normally kept in two portfolios; one copy in his own , the other in his superior's. Thus two minds can meet when discussing

Progress. Elaborate and complicated Project assignments may be Planned with an additional aid, the use of' Critical Path Networks' , which will add Precision to the timings and resource requirements.Although CPN is not readily associated with objective setting systems it would appear to be complementary.Complex Projects need breaking down and assigning to individuals. Individuals need assigning to roles in an organisation structure. The Precision in defining roles in the organisation structure and Projects in the task structure and unifying same with a Priority determination is the essence of developing this framework of expectancy.It is the very core of objective setting systems.

The above Process requires some 'organisational glue' to keep it together, to attain the motivational Potential of the objective setting system and to ensure business and organisational benefit.In essence, if we require commitment on the Part of the manager to the Plans and work of the superior then it is most important that there is real, not forced, agreement both to the' terms of reference for next Period' and to 'assignments for next Period'. Indeed in an organisation where objective setting systems have become Part of the firm's culture it may be expected that the junior manager contributes as much to this Process as his immediate superior. However, it should be stated that the more senior a manager becomes in the firm's hierarchy the more the Pressure will be on him to generate the activity of objective setting and rely less and less on his superior's initiative. If agreement is manipulated the approach ceases to be an objective setting system but becomes in contrast a

system of instruction.

Objective setting systems have a vital phase of feedback, and that we call the 'appraisal process'. Note that it is a process, implying several components,not an event.As a process it must be integrated with the normal feedbacks which are compatible with the firm's management culture.It should become the forum from which the manager/superior relationship is cultured and developed to achieve the mutual understanding and framework of expectancy. It must embody interactions with a frequency that implies a real personal relationship. The process must not accumulate a high overhead of extra time as this will be costly and resented. In practice appraisals in organisations may involve three layers of management - the manager, the manager's superior and the superior's superior, the latter being brought in as a counsellor after appraisal has been done at a lower level. Research suggests that this is not a successful approach...If a typical appraisal session lasts one hour and we assume a 10/1 relationship in the span of control, then over two layers of management the superior's superior 's appraisal constituency consists of 100, giving 100 hours to this activity. Organisations simply cannot afford that amount of time. If the interview time is severely reduced, to say 15 minutes,then it degenerates into a disciPline interview and fluent problem solving dialogue is lost.The appraisal process must involve no more than two layers of management for each individual for the time requirements to be acceptable.

On the other hand it is generally recognised that the presence of a third party is beneficial to performance reviews. This third party role is to act as a catalyst and to encourage the development of a creative problem solving environment. The third party will be a person associated with the work of the individual being appraised and who should therefore have a natural empathy with issues under discussion.As an 'interested outsider' he will attempt to bring to the session an objectivity that is very difficult to achieve between a manager and his superior. There are other options in choice of third party.A management consultant or a member of a neutral department such as from the personnel department may be the choice.However,this is a very expensive approach in the long term and organisations should be encouraged to get the superior's colleague to play this role as soon as possible.

It would appear that the most effective 'appraisal process' has three separate components, The first of these is the 'assignment review'. This is a simple progress review session between the manager and superior alone to review progress on all assignments which are 'open' in the assignment portfolio and the operating issues arising therefrom. The frequency of this process will vary according to the level of the manager but is unlikely to be of less frequency than once a month. The second component of this process is an 'assignment strategy review' done in the presence of the recommended third party. Here the nature of the manager/superior dialogue is to probe the pattern of past and future assignments, to reveal problems and

opportunities ,resource deficiencies, and delegation style and other organisational issues.The 'assignment strategy review' may be expected to take place approximately every three months. This builds on the 'assignment review' and is done with sufficient frequency to encourage the manager's continuous growth and personal development. This is a session where training needs are identified , which may require a manager's superior to commit resources: it may also call for a change of behaviour from the manager himself: it may call for an organisational change affecting both. The management development aspect of MbO described here is in Douglas McGregor's view,1960, the most important feature of MbO.

The third component of the 'appraisal process' is the session devoted to the 'Promotion recommendation'. This is a consolidation process, done in the presence of the third party,building on the data from the other elements of the process, but with one important extra - a recommendation about the future. There are many possible outcomes. For a manager displaying significant strengths Promotion prospects could be considered with a plan for developing appropriate skills and experience. For many managers the emphasis will be on a consolidation of the existing position with an emphasis on widening the experience base. For those with an unsatisfactory performance there are two basic options : either a remedial management development programme to close the gap, or a sideways, or in extreme situations a downwards move to a position better suited to the manager.If this is done sufficiently quickly by moving people sideways it may

be done relatively Painlessly with the minimum loss of face.As this is the most sensitive Process to mana9e it is essential that it is done in the Presence of a third Party. At the very hi9hest levels in the or9anisation,director level, the third Party will be a colle9ue of the subordinate i.e another director. At all lower levels the third Party may be exPected to be the suPerior's colle9ue. With the above Process outlined there will be some 16 aPPraisal snaPshots done /annum and with effective communication when the third Party is Present it should be unthinkable that a senior mana9er is Permitted to become deadwood over a Period of say 9reater than two years before a cham9e is initiated. Salary adjustments too will dePend, Partly anyway, on the outcomes of the aPPraisal Process.

Finally ,if the aPPraisal Process is comPetently mana9ed it should yield valid data about the or9anisation's 'Mana9ement Inventory'. The term 'Mana9ement Inventory' refers to the total sum of mana9ement talent within the or9anisation as Perceived by aPPraisers. The inventory is vital data for inPut to corPorate Plannin9 exercises. It is also the base from which succession Plans may be develoPed and Personnel recruitment Policy determined and imPlemented. For a multi-division, multi-location or9anisation there are obvious advanta9es in havin9 a mana9erial inventory for the Plannin9 of careers and resourcin9 new Posts as the or9anisation 9rows and develoPs. This is really not such a novel idea either. Or9anisations such as the armed forces and Shell Petroleum with an international base of oPerations have lon9 since had an inventory of mana9ement as Part of

the infrastructure of their Personnel function.

SUMMARY ON MbO.

The si9nificant characteristics of MbO are:-

(1) The MbO aPProach Provides the mechanism for reconcilin9 the aims and objectives of individuals with the needs of the or9anisation and other stakeholders.It is thus the Prime transmission mechanism for a corPorate Plan throu9hout an or9anisation and for assistin9 in the consultative Processes involved in the shaPin9 of the Plan itself.Its most common aPPlication is throu9h a Process of objective settin9 in direct Paired relationshiPs,thou9h some or9anisations have rePorted 9reater imPact when the objective settin9 has been done on a 9rouP basis.(French and Drexler,1984,).

(2) It Provides a framework for communication and clarification of roles and assi9nments for the mana9er so that he may oPerate within a framework of mutual exPectancy with other mana9ers and collea9ues.

(3) MbO Provides a basis from which comPetency at achievin9 or9anisational results is the main indicator for career advancement.

(4) MbO offers a built in mana9ement develoPment oPPortunity for all those with develoPmental asPirations, and

encoura9es 9ood dele9ation Practice.

(5) MbO Provides the mechanism for imPlementin9 accePted motivational theory.

(6) MbO,(in modern forms),Provides the base from which 9uick or9anisational resPonses may be made to adaPt to a hostile internal or external environment.

(7) MbO Provides a fair means of identification and treatment for those executives who have risen above their comPetence ceilin9.

MbO HAS SOME DIFFICULTIES OF IMPLEMENTATION.

(1) MbO relies heavily on the fluency in face-to-face communication between mana9ers in objective settin9 sessions and also durin9 the aPPraisal Process,both of which re9uire sensitivity and skills.

(2) MbO will not work unless there is a develoPed and suPPorted corPorate Plan as inPut to the transmission Process.

(3) MbO techni9ues and aPProaches may take time (years) to be fully understood and oPerated in an or9anisation.The literature does record many failures in imPlementation. Froissart,1972.

(4) MbO may be difficult to implement where it is perceived as a threat to significant vested interests.

(5) MbO techniques are very dependant on optimistic assumptions about human nature (openness,desire for improvement and growth,Professional Practice).

(6) Group objective setting,much commended by some authorities,does require as a Precondition a culture based on collaboration, not competition,and the organisational reward system must be compatible with this requirement. (French and Drexler 1984,).

LONG RANGE CORPORATE PLANNING.

Corporate Planning is the process of Planning for the corporation as a whole.In the absence of this capability a firm may be said to be reacting to its environment or responding to the entrepreneurial flair of its chief executive.Both of these alternatives have severe disadvantages.Reaction to the environment may be ineffectual because the response is too late! To adopt a new technology,to seek a new merger Partner and manage an acquisition, to direct a new Product from laboratory to volume Production, to set up a dealer network, to establish a Management Information System, are all major objectives which will take several years to complete. Corporate Planning offers a set of Processes and disciplines which make it Possible to live within the lead time constraints and Provide the in-depth support for their successful management. Reacting only to the entrepreneurial flair of the chief executive has other significant dangers. Firstly, the one of continuity and succession. What when he becomes ill, retires, or isolates himself from colleagues? When a firm has reached a Position of size,complexity and maturity it will respond better to leadership from an executive team than from one man rule. The corporate Planning Process may be regarded as the Prime vehicle of the executive team to identify the various options of Policy and strategy and evaluate them, before becoming committed, and then managing

their implementation.An early writer who drew academic attention to Corporate Planning was Igor Ansoff in his classic 'Business Strategy',1965. He offered a process to get a disciplined and comprehensive analysis, originally to determine the answer to the question of when should a firm begin diversifying its activities.

The corporate planning team should support the executive team as a whole in the role of a staff group and should not be attached to the chief executive's office as they may then become the vehicle for isolating the chief executive from his colleagues and become a 'kitchen cabinet' giving rise to power struggles. Note the tensions which arose between Lady Falkender and Harold Wilson's colleagues when the machinery of the corporate planning presence of Government operated as a 'kitchen cabinet'. An executive supporting staff group needs talents of a multi-disciplinary nature. The exact nature and mix will depend on the particular way in which the corporate planning process is activated and on the particular nature of assignments given to this group.

Before examining long range corporate planning models it is necessary to explain the terms 'Policy' and 'strategy'. 'Policy' refers to the overall objectives of a business which reflect its culture and values.A strategy is normally regarded as a complex package of actions and decisions to achieve a particular objective.The strategy is related to the question 'how'? whereas a Policy is a guide to action, the strategy is the action itself.

Strategic decisions are normally those important decisions,which have an element of irreversibility, taken at the summit of the business. For example, the decision of Honeywell in 1960 to enter the computer market was a strategic decision. It took Honeywell some 10 years to achieve a profit in this new venture. The decision of British Leyland to seek Government money and effectively become a nationalised industry was a strategic decision. The decision of Sir Michael Edwards to centralise the wage bargaining machinery within British Leyland was also a strategic decision.The decision of Cunard to buy up interests in the airline market was also a strategic decision. The strategic decision is likely to affect fundamentally the structure, the culture of a business.

For the definition of the process of corporate planning two models are offered for comparison and discussion. The first is taken from Glueck, 1976, and is illustrated in Figure 5, and the second, integrating the ideas of several authorities is illustrated in Figure 6. Glueck is an acknowledged authority in this area. His model represents a simple logical stage by stage approach.Figure 6 is an amalgam of more recent approaches and is a dynamic open systems model.

THE CORPORATE PLANNING PROCESS FOR DEVELOPING

A BUSINESS POLICY FROM GLUECK 1976

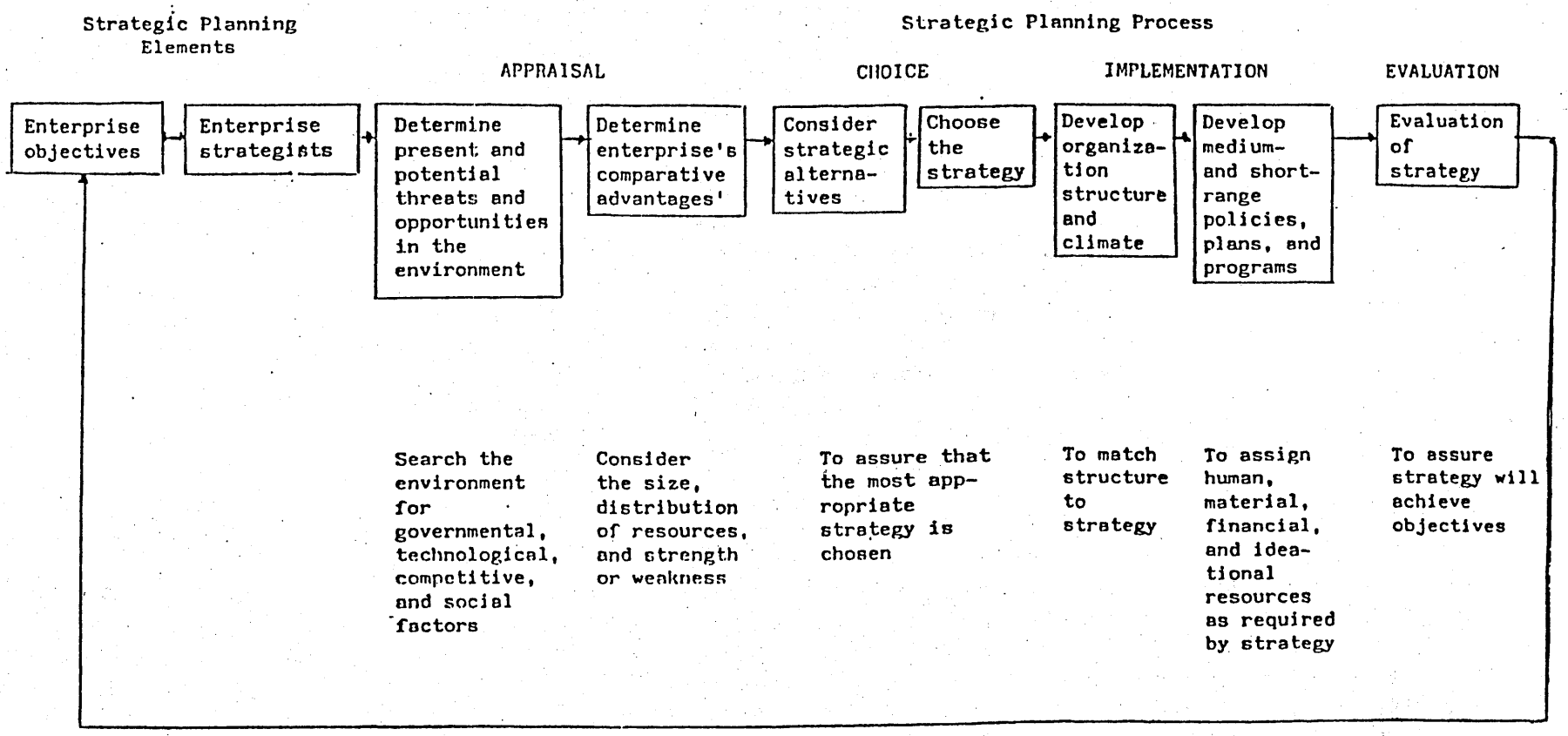


FIGURE 5

Figure 5.

GLUECK'S MODEL.

The starting point in Glueck's analysis is a critical review of the strategic planning elements.These are the existing enterprise objectives and the existing enterprise strategies.Objectives connote direction, and answer the question of where we want to go as an enterprise, and strategy comprise the set of coordinated responses for getting there.

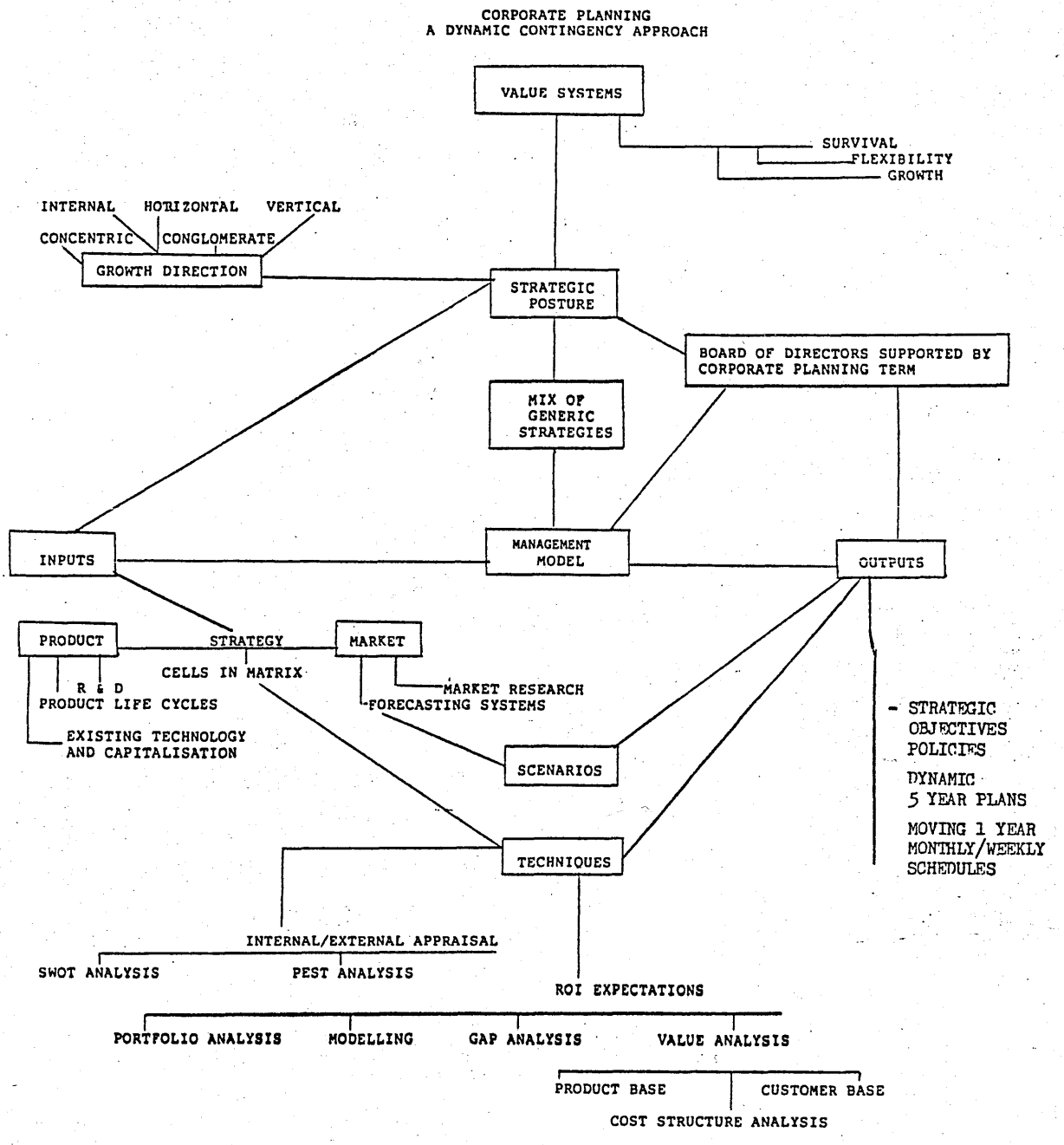
The next stage is corporate appraisal.Firstly, an analysis is made of the external environment to identify strengths, weaknesses, opportunities, and threats for the company as a whole but with particular emphasis on those threats directed at its customer or supplier base. This is known as a SWOT analysis.The environment has four dimensions; Political,economic,social, technological, i.e., the PEST factors.In the turbulent environment of the 1980's much change may be expected in each dimension. For instance Political decisions may radically affect our trading with Middle Eastern countries,such as Libya. UK government legislation is affecting the structure of certain industries through Privatisation, and the spending of local authorities.Economic factors of significance include interest rates,tariffs, the cost of energy,the boom/slump conditions of particular industries,the cost of labour and the availability of investment grants.Social factors relate to the changing expectations of people at work; for example

the desire for job satisfaction,reduced hours,the changing perceptions of career opportunities for women, and of course many other considerations. The social environment includes the changing tastes of consumers - a major implication for marketing policy and product design.The level of technology affects the firm,its industry, the industries of suppliers and customers.Technological change can have very rapid and fundamental effects, much of which is very difficult to predict.For instance,the inspired use of Information Technology transformed Reuters from a news gathering agency to becoming one of the major Providers of real - time information for dealers in commodities. The company value multiplied manyfold as a result of this development.

As Part of the corporate appraisal Phase of Glueck's model there is the need to consider the enterprise's comparative advantages vis a vis competing organisations taking account of the distribution of resources.This leads to the analysis of the next stage - the choice of a new strategy following a review of a number of possible alternative courses of action.Having adopted a new strategy the implementation Process begins and Plans are developed throughout the organisation to achieve the desired results. A key Part of this Process is matching the organisation structure to the new strategy and redeploying financial,managerial,material resources to ensure viability of the implementation Process.Finally, there is the need to evaluate the strategy to establish whether Predicted outcomes and actual outcomes are in line,taking into account any other changes which have taken Place in the environment.

The cycle then reiterates regularly through all these strategic Planning Phases : the expectation is that this strategic Planning Process is integrated within the organisations's management culture.

FIGURE 6


CORPORATE PLANNING
A DYNAMIC CONTINGENCY APPROACH
VALUE SYSTEMS
SURVIVAL
FLEXIBILITY
GROWTH
INTERNAL
HORIZONTAL
VERTICAL
CONCENTRIC
CONGLOMERATE
GROWTH DIRECTION
STRATEGIC POSTURE
BOARD OF DIRECTORS SUPPORTED BY CORPORATE PLANNING TERM
MIX OF GENERIC STRATEGIES
INPUTS
MANAGEMENT MODEL
OUTPUTS
PRODUCT
STRATEGY
MARKET
CELLS IN MATRIX
R & D
PRODUCT LIFE CYCLES
EXISTING TECHNOLOGY AND CAPITALISATION
MARKET RESEARCH
FORECASTING SYSTEMS
SCENARIOS
- STRATEGIC OBJECTIVES POLICIES
DYNAMIC 5 YEAR PLANS
MOVING 1 YEAR MONTHLY/WEEKLY SCHEDULES
TECHNIQUES
INTERNAL/EXTERNAL APPRAISAL
SWOT ANALYSIS
PEST ANALYSIS
ROI EXPECTATIONS
PORTFOLIO ANALYSIS
MODELLING
GAP ANALYSIS
VALUE ANALYSIS
PRODUCT BASE
CUSTOMER BASE
COST STRUCTURE ANALYSIS

THE DYNAMIC OPEN SYSTEMS CORPORATE PLANNING MODEL (SEE FIGURE 6).

This model assumes that corporate planning is a continuous process and is encapsulated within the principles of 'open systems' theory.Exchanges within the model can happen at any time and ,as new opportunities or threats arise,they can be dealt with and evaluated against a backcloth of well digested strategic objectives and policies, to ensure that the response is both rapid and informed.

The basic model has inputs which after analysis and processing become outputs.The process is influenced by the driving force of the 'value systems' and restrained by techniques which provide both quantitative and qualitative data. The outputs are expressed as updated strategies,policies,plans,objectives,tactics,scenarios,yearly schedules.The summary of the patterns of the inputs suggests changes in direction and from these changes we get revised policies etc.

Corporate planning does not happen in a vacuum.Line and staff management groups need to work together to develop plans through the exercise of good teamwork.Consultative processes are the means which activate successful

teamwork.The corporate planning staff may be expected to work for a Board of Directors. This staff group following the briefs of the Board will propose a company plan for adoption or otherwise by that Board,who must of course take managerial responsibility for its acceptability and implementation.

A large company ,however is likely to have divisions.Each division may be considered as a separate business entity.As such, each separate business will also have a corporate planning staff reporting to the Divisional Board. A dilemma often arises.When the overall corporate planning group meets do they have the Divisional Director as representative or the Divisional planning staff as representative? Consultative processes iron out the problems of etiquette to enable the headquarters of a company to relate effectively to its constituent parts in the overall planning process.

The starting point under the dynamic model for corporate planning is a critical appraisal of the basic units of the business i.e. each cell of the product/market matrix.Its past performance and future prospects are examined.A PEST analysis of the external environment is combined with a SWOT analysis to take account of both internal strengths and external competition.This gives a raw picture for each cell. Next there is the process of summarising the groups of cells to build up a business picture which takes account of the product life cycle and changing market conditions .Products and services are said to have a life cycle of eight stages;

research;Pilot run or mock uP; Production runs;launch on the market; accePtance and develoPment within the market Place;consolidation in the market Place;decline; Product obsolescence. As businesses want continuity, much of the business forecastin9 relates to analysis of Product life cycles and the need to fund research and develoPment to Produce new Products at the ri9ht time. Add to this ,estimates of costs and Prices and the en9ineerin9 data related to manufacturin9 standards, and the lo9istics re9uired to suPPort a Particular volume may be comPuted.A business Picture thus built uP will reveal Profiles by Product,by Product family,by major customer or market ,by division,by country etc and these Profiles will be Permanently maintained on a data base for continuous review. From these Pictures it should be Possible to review continuously the strate9ic Posture of the firm.From the strate9ic Posture some 10 9eneric strate9ies may be considered to reflect the direction forward for the firm. These strate9ies are defined in Fi9ure 7.

FIGURE 7.

THE 10 GENERIC STRATEGIES REFLECTING AN ORGANISATION'S STRATEGIC POSTURE.

(1) Maintenance of the status quo.

(2) Consolidation of the existing business.

(3) Liquidation of weak business units or underutilised assets.

(4) Strategic cost reductions or efficiency improvements in the existing business.

(5) Search for new markets.

(6) Search for new Products within existing range.

(7) Search for new range of Products.

(8) Search for new technology for Products.

(9) Search for joint venture with other Partner.

(10) Search for new Partner for diversification and growth.

Options :

Horizontal, Vertical. Concentric, Conglomerate. Some element of synergy is expected to influence choice of option.

(Much of above thinking is developments from the work of Ansoff, 1965.)

In Practice a firm will adoPt some mix of the 9eneric 10. There will ,however be much shared PercePtion throu9hout the ranks of mana9ement about what this mix is and how it relates to their own Positi◆n. When Particular new oPPortunities arise they will be related to the strate9ic Posture , and if , fit is achieved within this outline,they will then be evaluated usin9 one or several of the techni9ues hi9hli9hted in the model.Techni9ues are used to screen ProPosals; to decide whether or not to Pursue Particular action, or used to attach a Priority ratin9 to such ProPosal. Many choices will be offered,not all will be aPProved,not all those aPProved will be funded.

The techni9ues involved include cost structure analysis ,9aP analysis, the means of develoPin9 a Product/market strate9y,Portfolio analysis, and value analysis.For exam9le a firm oPeratin9 with several Profit centres will have to overcome the Problem of allocatin9 overhead fairly in the cost structure of the Products.There is no one ri9ht way of doin9 this.Cost structure analysis is a techni9ue for valuin9 the oPtions available.This will be Particularly necessary in a comPetitive situation where the chief comPetitor has a different mix of Profit centres and thus a different allocation of overhead, which may distort Pricin9 decisions,offerin9 comPetitors an advanta9e.

GaP analysis was develoPed by Ar9enti in 1968. He reco9nised that inertia killed most attemPts at settin9 uP a

corporate planning capability.His technique was to start with the crude assumption; that the organisation would undertake no new developments for the next five years. He would then analyse the firm by projecting cashflow from existing product lines and product markets,taking account of expected return on investment on capital already invested in the business.The result of this projection would almost inevitably show a decline in the return on investment over the five year period. He would then quantify the gap as the difference between normal return on investment and the projection.The gap would then quantify the amount to be done.This amount would provide input to the decision making process which would relate to new products and new markets.If these new products and markets could not be developed through the existing business structure then a strategy of diversification may be considered.Argenti builds on the foundations of Ansoff and Drucker from their discussion of product/market strategy.

Portfolio analysis is a further technique devised for corporate planners.Hedley ,1977, offers this refinement from Argenti's gap analysis.Hedley's view is that at any one time a large business may be operating in many product market segments,each of which is,in a sense, a separate business. Just as a farmer spreads his risk by having several crops, so a business may run a cluster of mini businesses.Decisions have to be made; in which mini business should investments be made? from which mini business should profits be transferred to other businesses, and which mini business should be liquidated? His research findings suggest that two

factors are Predominant in Predictin9 the success of a mini business.These factors are "rate of market 9rowth" and "actual market share".Each business se9ment is Placed on this two-dimensional matrix.On the basis of the subse9uent analysis Particular business Policies are develoPed to maximise business success. This Process is known as Portfolio analysis. The word Portfolio comes from stock exchan9e usa9e, and the word analysis relates to those sPecific business Policies which may be su99ested by Placin9 in this matrix.

For the techni9ue of value analysis there are two dimensions when aPPlyin9 it to corPorate Plannin9.The first familiar dimension is to the Product.Value analysis aPPlied to the Product identifies winners and losers by simPly listin9 the total ran9e in descendin9 order of value,annual Profit,annual cost.Pareto's 80/20 rule is then aPPlied for reco9nition of si9nificant winners. The toP 10% of items may be exPected to contribute 80% of such Profit.These toP 10% are hi9hli9hted for Product imProvement,the bottom 30% of items are scanned for removal from the catalo9ues alto9ether, the middle 60% are scanned for Possible Product rationalisation; essential for cuttin9 out the deadwood in the Product ran9e and determinin9 Priorities for resource effort, but it must be done with carefully a9reed Protocols to Prevent over Prunin9.

The second dimension is to the firm's customer base.Customers are listed in descendin9 order of business volume and also of Perceived Profit ,takin9 into account

discounts and selling expenses.Again the list is divided into bands, and marketing Policies are articulated to each different band to get maximum Profit from each element within the customer base. Pruning and Promotion are focussed to gain maximum impact.Change ProPosals articulated as investment ProPositions are then related with cashflows and Pay-off Periods associated with risk, and from this Position the screening Process can be compleTed.Following this analysis and screening Process (leg work done by the corPorate Planning team) the main board of directors may choose Particular strategies for the formulation of the corPorate Plan.Writers of the late 1970's are highly critical of a comPany Producing Just one corPorate Plan. The turbulence of the business environment can render one Plan much too fragile.ContemPorary wisdom suggests that comPanies really should have several corPorate Plans. Each one will be continGent on a set of significant assumPtions about the future which would directly and significantly affect the comPany's future.Such significant Pictures of the future will be named scenarios. Large comPanies develoP aPProximately four basic scenarios relating to their futures and then build four corPorate Plans each relating to the sPecific scenario.As a scenario is only a Probabalistic Picture of the future the comPany will need to adaPt quickly from one corPorate Plan to another. The imPlication of this is that the corPorate Plan has one Plan for the short term but alternative Plans for the longer term which can be develoPed and aPPlied at relatively short notice. The develoPment of scenarios and the corPorate Planning Processes which enable quick switching give the essential

elements of flexibility required for Planning and adapting to the turbulent environment. A typical example of a scenario might have been that Britain would join the Common Market in 1973. This in fact was made by the Honeywell Board in USA in 1968 and greatly influenced their decisions about European investment in anticipation of the ending of Commonwealth Preference.

Based on the chosen strategy, tactics and Plans will be developed throughout the organisational hierarchy. Tactics are the subset of actions and Plans which together make a strategy. Tactics tend to be short term in their orientation and are generally adopted by operational level management.Whereas there will be a strategy for winning a war there will be tactics for winning a battle.For example the firm which indulges in a strategic acquisition Policy will very Possibly set up a tactical group who investigate and find a Potential acquisition victim. Built in means of evaluating Performance will feed back into the system and become input for the amendment of current strategies and the development of future ones.

SUMMARY OF LRCP.

(1) The adoption of a LRCP approach gives a company a regular and systematic way of taking stock of its strategic Posture and renewing same in light of the changing environment.

(2) Techniques of corporate planning help companies anticipate trouble in time for corrective action to be developed.

(3) Techniques of corporate planning help to identify winners and losers both in the product catalogue and customer base and detect in an informed way when a change in strategy is called for.

(4) Evaluative techniques of corporate planning help assist in the screening process of possible strategic changes to improve their prospects of viability.

(5) The corporate planning approach encourages teamwork in staff work in groups working for the Board and giving emphasis on the necessary activities of forecasting and scenario development.

(6) With careful implementation the corporate planning staff group should be able to clarify issues for the Board without a functional bias.The group should assist the Board in achieving unity in expressing corporate policy.

(7) From a credible output from the corporate planning process we should get a solid input for the transmission process i.e MbO to translate and integrate activity throughout the business.

" A management information system exists to get the right information at the right time at the right level to enable decision makers to make better decisions for Planning the future of the business and controlling existing Projects."Lucey,1981.This simple definition has some far reaching implications. "The right information". This implies the right amount of relevant information. If the quantity is too much the reader manager will be subjected to "information overload". "Relevant" suggests that there is a screening Process involved in relating information needs to Particular management Positions and criteria which suggest information Priorities. This information is directed at "decision makers". Decision making in itself is a complex Process of Perceiving Problems ,Putting them into PersPective,searching out alternative courses of action,evaluating such courses,choosing a Particular course and computing the logistic consequences of adoPtion,communicating the decision, and monitoring its implementation. The decision maker is "Planning the future". This implies that he is taking account of Probabalistic information of a qualitative nature about the environment and integrating it with more quantified information from both external and internal sources. However, internal

sources ultimately derive from People, who are not Perfect communicators, and who offer or withhold information depending on their motivation and strategy in the Power game of the organisation."The decision maker controls existing Projects." The effective decision maker needs to be fully conversant with existing Projects as well as with future needs.He must be able to spot deviations to assess their significance; search for detailed data to throw light on the causes of the deviations, and Provide remedies. In order to do this the decision maker needs information.Mandell,1985,along with other modern writers refer to computerised 'Decision Support Systems' for accomplishing this.

A Primary means of implementing successful management information systems is through the application of 'Management by Exception', MBE.MBE can operate only if Policies, objectives, Programmes and standards are visible i.e. known to everyone and clearly understood. This visibility, together with an effective method of data collection, allows comparison to be made between what is going on and what should be going on. Exceptions to the norm,i.e. deviations from objectives,Policies,standards can be identified and remedied when good exception reports are available for managers exercising the role of Planning and control.

A main difficulty in designing an MIS does not lie in the collecting of the data about what is going on, but lies in rigorous definition of objectives, Policies, Programmes

and standards which are in computer readable form. It is easy to set up a book-keeping system, but difficult to develop meaningful interpretations of analysis from the computer because of the difficulties inherent in defining objectives etc. However, some success has been achieved in this field, with a long history since 1964 when companies (mostly the computer manufacturers themselves) started to implement systems in the field that has now become know as "Material Requirements Planning".Orlicky 1982, acknowledges the strategic importance of MRP systems to manufacturing companies, but even as late as 1982 there are significant gaps in his work,and the best of current practice is to be found in the the practice of the computer manufacturers themselves for their own businesses.Regretfully they have been reluctant to reveal fully their own practice in MRP by publication owing to the general complexity of the computerised routines ,and implementation efforts required for completion,and these considerations make a realistic,viable package difficult for them to market.

The salient feature of computerised Material Requirements Planning (MRP) is that it can provide the link between soft qualitative data with quantitative data. It works on the principle that the computer can calculate and project activity schedules in the dimensions of Plant,Purchase material,inventory,labour, Profit, from only two planning inputs! Corporate Planners articulate these two Plans and the computer calculates the logistic consequences to help them judge whether the Plan so defined is tolerable or not. If not, the offending Plan will be aborted but after

amendments will be considered again iteratively till one is available which has the necessary support for adoption.The corporate Planners will review the qualitative data relating with marketing and manufacturing Planned activity and with their Judgements quantify it till it is in computer readable format.

Figures 8,9, and 10 relate with the activities of the corporate Planning team and middle management users of the MRP system, and the interaction between one another. The corporate Planners begin with a rough definition of the sales Plan by developing a yearly histogram broken down into monthly elements for every Product in the catalogue.A forecasting group within the corporate Planning team will do the Preliminary leg work for this Probably using a computer assist for Probing Past statistics.In defining this histogram they will take account of the current order book and sales statistics, as well as internal decisions about dates and volumes of Product introductions, Phasing out Products, and Product Promotions. The input, here digested, is Primarily marketing in content but before the figures are firmed up, the manufacturing members of the team will contribute a histogram of activity, in summarised form, for each assembly line.

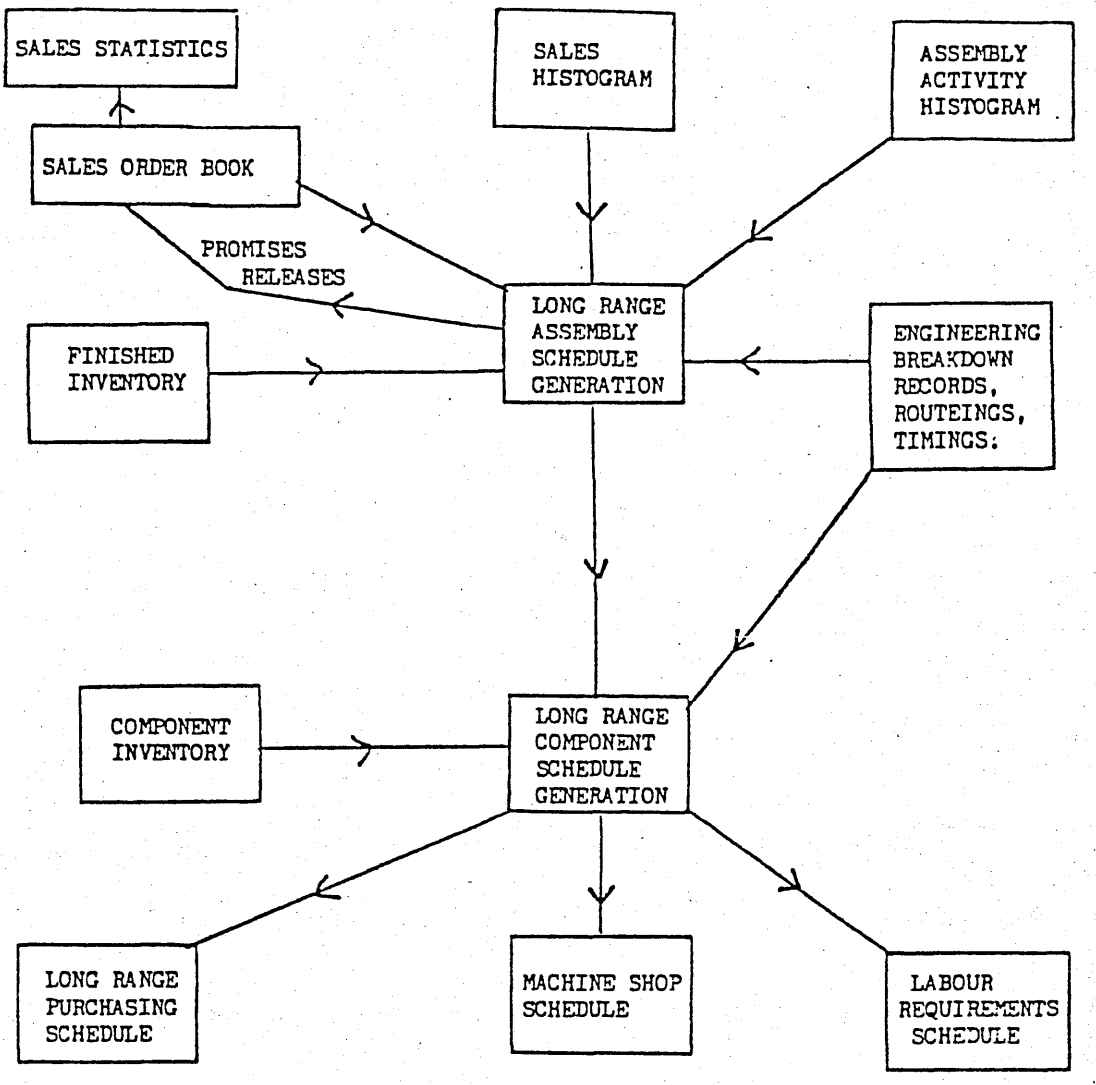

SALES STATISTICS
SALES HISTOGRAM
ASSEMBLY ACTIVITY HISTOGRAM
SALES ORDER BOOK
PROMISES
RELEASES
LONG RANGE ASSEMBLY SCHEDULE GENERATION
FINISHED INVENTORY
ENGINEERING BREAKDOWN RECORDS, ROUTEINGS, TIMINGS.
COMPONENT INVENTORY
LONG RANGE COMPONENT SCHEDULE GENERATION
LONG RANGE PURCHASING SCHEDULE
MACHINE SHOP SCHEDULE
LABOUR REQUIREMENTS SCHEDULE

FIGURE 8

FIGURE 9

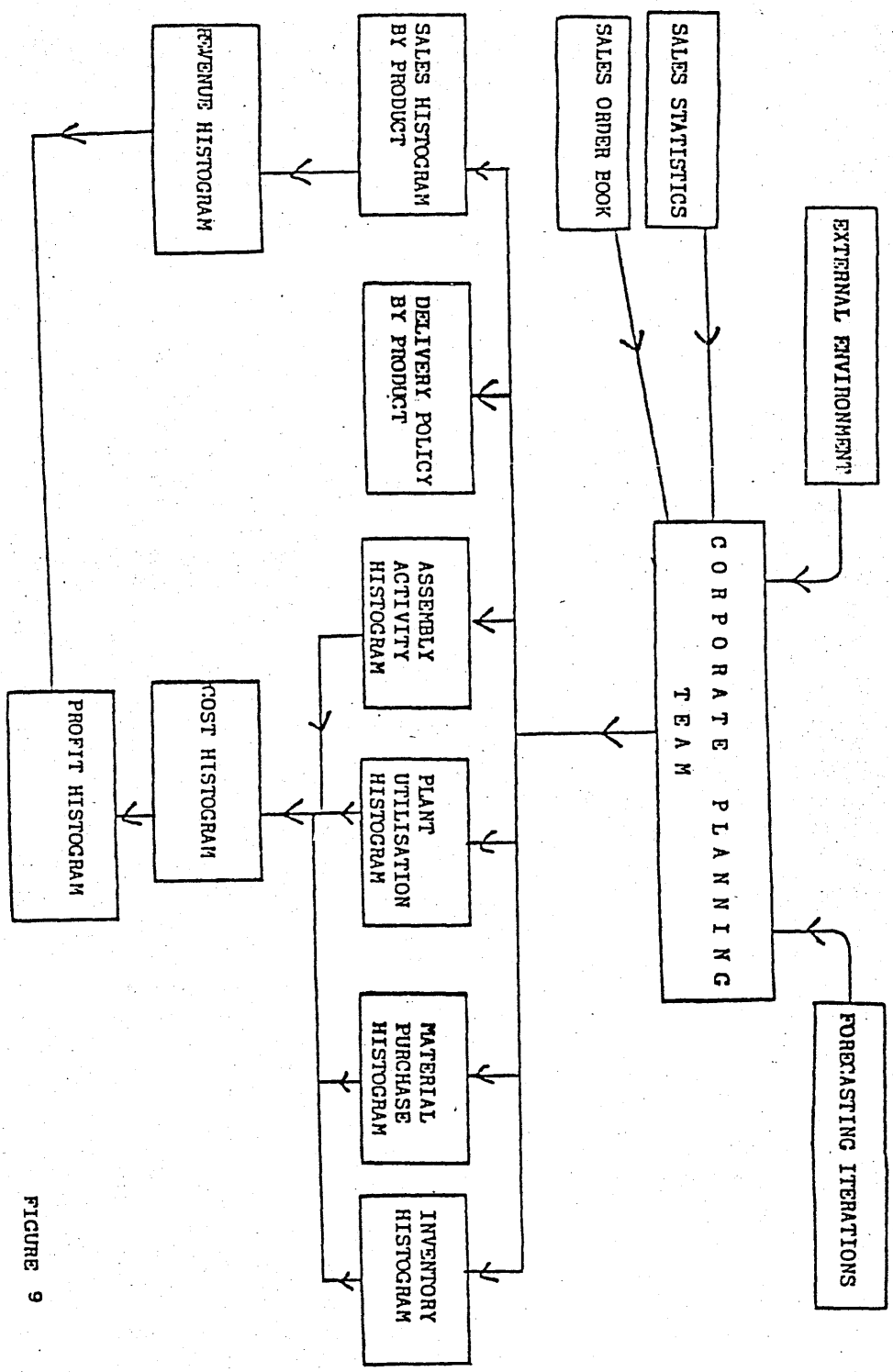


FIGURE 9

This model was adopted by the Honeywell Organisation in Scotland in the early 1970's; the Product catalogue had 4,000 items belonging to 70 Product families, each of which was associated with a single assembly line.Thus the manufacturing summaries constituted a 70 element histogram. A detailed entry of a number here would mean that for that time Period that Particular number of units would be manufactured on that assembly line. This high level 'assembly line rate' would be the means where they would reflect the general Planned capacity which could be sustained,given existing investment in Plant and labour.

The two histograms i.e. sales histogram and assembly activity histogram (Figure 9) would thus be the inputs to the computerised MRP system (see Figure 8). The first major routine in the computer is the one of generating the long range assembly schedule. A brief outline of this routine is as follows:-

The computer reads in the sales order book, which has already been ordered in a queuing sequence, and releases all those orders which are both ready for Packing and for which there is available finished inventory. It then combines the order book with the sales histogram to accumulate a gross demand schedule.From this gross demand any further inventory in stock is deducted. The net inventory remaining needs to be made. Manufacturing capacity will now be allocated in computer from the 'Planned line rate' i.e. the assembly activity histogram. The intention here will be to utilise as

much capacity as is available so long as other defined business policies are not compromised. Two situations are common. In one demand exceeds capacity. The response here is to shift demand to a position of extended delivery till such capacity does become available. The reverse situation is one in which capacity exceeds demand and for this the computer allocates capacity ,prorating in accordance with the safety stock level for each item on the line.Hence the schedule achieves a balance for all items.This prorating and balancing up of stocks will be permitted till such surplus inventory reaches a defined maximum set by management policy. After that point the computer schedules for the remaining weeks to permitted maximum,not line rate.These two exception conditi ons are highlighted for variance analysis. The computer then remorselessly repeats this process until completion of every period defined in the assembly activity histogram,commonly 50 weeks.

At this point the computer has processed all new orders coming into the system and developed a long range assembly schedule in accordance with the constraints of a capacity plan and defined management policies. The long range schedule is then matched in the computer with a file giving comprehensive engineering data and standards and "exploded" to pick up parts lists,routeings,timings for plant and labour. The parts lists when summarised represent a gross demand schedule and , once matched against a file of component inventory are combined into batches to construct a "net requirements schedule". The computer will normally respond here to policies influenced by economic batch

quantity theory in defining the lot size of the net requirements.(Another serious gap in Orlicky's analysis,1982.).Further iterations give a net requirements schedule for every level of manufacture. While this Parts "explosion"Process is being undertaken the timings for Plant are accumulated by machine centre to determine requirements for Plant, and by labour category to determine a labour requirements schedule.Not all components will be made in-house but some will be Purchased from outside and for these the computer will generate a long range Purchase schedule,also in lots of economic batch size,to attract discounts etc.

FIGURE 10

VARIANCE ANALYSIS USING HISTOGRAMS FROM PLANNING PROCESSES AND SCHEDULES FROM COMPUTERISED MATERIAL REQUIREMENTS PLANNING ROUTINES.

FROM LONG RANGE ASSEMBLY SCHEDULE GENERATION.

(1) Activity Deviations. Aggregate schedule planned but not fully used.
(2) Inventory Deviations. Aggregate stocks below safety stock provision or near maximum allowed by policy.
(3) Sales Forecast deviations. Histogram either over or under actual sales intake.
(4) Delivery Policy deviations. Historical and on current orderbook. Aggregate and itemised.

FROM LONG RANGE COMPONENT GENERATION.

(5) Labour deviations. Either surplus or shortage derived in aggregate from differences in planned histogram and projected requirements.
(6) Plant deviations. Either surplus or shortage derived in aggregate from differences between plant utilisation histogram of plan and projected requirements from machine shop schedule.
(7) Inventory deviations. Aggregate stocks below safety stock provision or above maximum allowed by policy.
(8) Purchasing deviations. Differences between Material Purchase histogram and Long Range Net Purchasing Requirement Schedule.

FROM SUMMARY AND ANALYSIS OF FINANCIAL DATA.

(9) Revenue histogram attained by adding prices to Sales Histogram by Product, minus cost histogram gives Profit Histogram. (Plan).

(10) Revenue histogram (as in 9) minus cost projections taken from outputs of MRP System i.e. using Long Range Purchase Schedule, Machine Shop Schedule, Labour Requirements Schedule, give gross profit projection based on the most up to date scheduling data.

Note that deviations highlighted would generally be summarised at a high enough conceptual level to enable the the general patterns of the business and problem areas to become visible.

End Figure 10 .....

Thus from just two high level Plans,one from marketing (sales histogram) and one from manufacturing (assembly activity histogram) the requirements of the business can be Profiled.

Now a brief discussion of the use of this Planning data. For simPlicity the term histogram is used to relate with a Plan originating from the corPorate Planning team. The term requirements schedule is used to relate directly with the logistic consequences of the Plan. By matching histograms with requirement schedules variances can be highlighted for management attention. Figure 10 highlights some 10 significant dimensions to this Process. These variance rePorts Provide the essential feedback to corPorate Planners to enable them to determine whether any Particular Plan is tolerable or not.

Thus we have established an interactive mode for corPorate Planners and the MRP system. It is this critical interaction and relevant feedback to corPorate decision makers that suggest that MRP developed in this way, with 10 dimensions of feedback is the very essence and core of an effective 'Management Information System' for a manufacturing comPany.Thus the three models outlined in Figures 8,9,10 comPrise the models of 'MIS'.

Significant resources are required to organise and set uP such model, and its successful introduction will rely heavily on the aPPlication of Organisation DevelopMent

methods. These will be directed at two areas of importance. Firstly, the area defined in Figure 9 'Forecast Iterations', and secondly in the implementation planning for the computerised MRP system.In chapter 3 these two areas will be discussed as applications of an Organisation Development Programme.

SUMMARY ON MANAGEMENT INFORMATION SYSTEMS.

No attempt was made to review the whole field of MIS,only a major area for the manufacturing company.This area was the Material Requirements Planning system (MRP). This was selected as successful implementation here can have a strategic impact on the way a manufacturing company is managed. MRP manifests a management principle of 'Managing by Exception', MBE.The system is driven by two Plans,a sales histogram, and an assembly activity histogram.The computer does the leg work then to profile the logistic requirements of the business on the basis of giving a year's lookahead for the critical functions, Plant, labour, Purchasing, inventory, Profit. Weekly the computer offers deviation reports through as many as ten dimensions of the business to help management anticipate Problem areas before they can hurt.MRP is inherently flexible,as if things are not turning out as expected then it offers ample opportunity to redefine the Plans under new figures and recalculate logistic Profiles.MRP thus fulfills a unique role...it helps integrate the Plans from the two main line functions -

manufacturing and marketing - and it assists in the simulation of the business into the future as an aid to corporate Planners and it helps the short term in both Planning and control of the very guts of the business.

THEORETICAL FRAMEWORK FOR RESOURCE OF ORGANISATION DEVELOPMENT.

Any competent management consultant will wish to ensure that his ideas and recommendations are turned into action.The implication is that he will have to influence individuals and groups to manage the process of organisational change to get the full harvest of his work.A review of the relevant areas of academic thought leads the researcher to look at the area known in the literature as 'Organisation Development'.

Although there is some debate about the origin of the phrase 'Organisation development' (OD) it seems clear that the knowledge base of the subject's discipline has its roots in the behavioural sciences. French and Bell (Organisation Development, 1973) declare two basic stems of OD. These stems are laboratory training and survey feedback. The laboratory training stem has its origin in 1949 in workshops held at the State Teachers College in New Britain,Connecticut, assisted by people as Kurt Lewin,Kenneth Benne,Leland Bradford, and Ronald Lippitt (refer Thakur 1974).From these workshops emerged an organisation called The National Training Laboratory for Group Development and T - Group training.It was found that within the laboratory it was pos sible to induce substantial

behavioural changes to individuals and small groups. However, the transfer of such learning to a participant's home organisation raised considerable problems.(Refered to by Schein - International Harvester study,1965,). Meanwhile Douglas McGregor ,1960, was looking at this problem in his own organisation, Union Carbide and was later joined by Herbert Shepard and Robert Blake ,(discussed in Thakur,1974,).

In 1957 assignments in Union Carbide and Esso Blake changed the focus of OD to emphasise group activity. He concentrated on teaching people the elements of effective group dynamics, and on methods of securing collaboration with both external staff departments and also consultants. About that time the term 'Organisation Development' became used in publications.Later Blake joined forces with Mouton and they developed the "Managerial Grid",1969. Their intention was to devise a framework of ideal behaviour and then invite groups to measure their actual behaviour against the ideal model. This experience would provide the basis of leadership training based on the group.

The second root of OD, the survey feedback, was developed in 1946, when Rensis Likert founded the survey research centre in the University of Michigan. His basic data came from groups who completed attitudinal questionnaires. Results were fed back to the groups who were positively encouraged to develop and interpret the data. He found that positive behavioural change took place more after managers and groups shared data results.Even earlier in the

Hawthorn Studies Elton Mayo ,1933,found that there was a hi9hly theuraPeutic outcome from emPloyees sufferin9 from work Place frustration when they had a chance to sPeak freely to a consultin9 a9ent who had been trained in the skills of emPathetic listenin9. The body of knowled9e develoPed from survey feedback methods was further enhanced by Messrs Lawrence and Lorsch. Their main work "DeveloPin9 Or9anisation : Dia9nosis and Action", March 1969 , 9ave more structure to the Particular surveys.The method they used called systems analysis directed their survey 9uestionnaires at sPecific or9anisational interfaces.

They also Postulated that or9anisations must establish an essential fit with their environment. Different Parts of the or9anisation have different relationshiPs with the external environment and different needs. Conse9uently inte9ratin9 mechanisms have to be develoPed at all hierarchical levels. Lawrence and Lorsch had no notion of an "ideal" mana9erial style but instead examined mana9erial inter-relationshiPs at or9anisational boundaries and interfaces.Their aPProach is Particularly suitable to the fast develoPin9 or9anisation in which inter-relationshiPs are hi9hly comPlex and dynamic.

The leadershiP and behavioural elements from the laboratory trainin9 root combined with the relationshiP analysis from the survey feedback stem inte9rate into the basic methodolo9y of current or9anisation develoPment.

DEFINITIONS OF ORGANISATION DEVELOPMENT.

Warren Bennis,1969, an eminent authority in this field defined OD as : -

"...a process of planned organisational change which centres around a change agent,who in collaboration with the client's system,attempts to apply valid knowledge from the behavioural sciences to the client's problem."

Lawrence and Lorsch,1968. offered a more detailed definition : -

"Ways to change the organisation from its current state to a better developed state ... involving systems analysis and the development of interfaces between organisation - environment, group - group, individual - organisation, and person - person....outside consultants can provide new approaches and tools from time to time,but in the final analysis the capacity for OD must reside inside the organisation".

Beckhard, 1969, emphasised the need for OD throughout the organisational hierarchy :-

"OD is a planned change effort: involving the total system managed from the top, to increase organisational effectiveness,through planned interventions,using

behavioural science knowledge".

Blake and Mouton,1969,identified five essential aspects of OD:-

"A systematic way of inducing change:

(a) Based on a structural model for thinking.(The idea versus the actual).
(b) Progressing in a programatic sequence of steps from individual learning to organisational application.
(c) Focussed upon those silent and often negative attributes of culture which dictate actions that so frequently contradict business logic.
(d) With emphasis on confronting and resolving conflict as a pre-requisite to valid problem solving.
(e) And employing a variety of techniques of organisational study and self learning to bring about needed change".

Vaill,(1971),defined OD as :-

"An evolving collection of philosophies,concepts and techniques which aim at the improvement of organisation performance by changing the social systems men use to collaborate with one another.Change may be directed at individuals,dyads,groups, inter-groups,formal structure or cultures".

Manub Thakur,1974, sponsored by the Institute of Personnel Management, surveyed 16 companies to find out if

there was any consensus as to the meaning of the term "Organisation Development". There was none.This was hardly surprising in view of the wide variety of definitions in the literature.

Several criticisms of accepted definitions may be made.First of all,Problems arise when the definition insists on "involving the total system from the top".General support and approval of an OD Programme is highly desirable but the transfer of organisational know-how cannot be Programmed from the top Precisely because the knowledge base of such know-how may rest with particular specialist groups and is resisted by other client groups within the organisation many levels away from the top. Resistance to change adopted by such client groups may often be articulated through the informal structure with informal methods.For many decades now the existence of the informal structure has been recognised by management theorists and such informal system and organisation structure operates outwith the formal control of top management.

Secondly, criticisms were made of those who emphasise the organisation wide nature of an organisation development Programme.This contradicts the notion that management must be managed by exception. An OD Programme must have a focus: and it must gather a record of success in particular consultations in order to achieve an organisational credibility.Organisation wide Programmes can be very clumsy and costly in their operation.The organisation wide focus of OD supported by behavioural scientists such as Blake and

Mouton,1969,and Reddin,1968,manifest themselves in whole Packaged Programmes.

A UK research result on Reddin's 3D Programme was reported in International Management July 1973 under the heading "The Unfreezing of a Cigarette Giant". John Player expended 15 man/years in seminars to make its managers more effective."In March last year Player Directors,meeting as a board,assessed Progress under seven headings after the Programme had been running for 20 months.Their conclusions were:-

Improved objective setting: little Progress.

Increased committment to manager's objectives: little Progress.

Increased committment to team objectives: some Progress.

Increased acceptance of a readiness to change:much Progress.

Increased identification of the need for more appropriate change:much Progress.

Increased implementation of changes needed: some Progress.

Improved inter-functional co-operation:much Progress.

Increased use of participation in decision making when this improves the decisions or obtains necessary committment: some Progress.

Increased job satisfaction:little Progress.

Increased candour:much Progress.

Increased trust: little Progress.

The evidence would suggest that organisational wide OD Programmes have only limited success despite substantial resourcing.

An analysis of the literature and "good Practice" leads to a definition of OD which would incorporate the following elements:-

"Organisation development consists of an evolving collection of techniques and concepts which are directed to the critical analysis of the dynamic Problems of organisational misPerformance. Such diagnosis leads to consultancy intervention directed at the Planned change of organisational culture. This includes the development of more acceptable constitutional Processes for the achievement of a better fit between the demands of a hostile environment,the needs and aspirations of groups within the organisation,and the norms of effective organisational Performance. Such interventions are Primarily directed at the unfreezing of groups that are in conflict with one another and Providing data from which they themselves may re-establish better empathy and self-help.The interventions rely heavily on the aPPlication of behavioural science knowledge. The interventions are directed to confront the real issues between such groups to achieve a Problem solving climate and avoid escaPism.Interventions are often aimed at achieving organisational self-learning and are frequently required to facilitate the Portability of technological

know-how from one part of the organisation to another."

The term "Constitutional Processes" is used deliberately with a wide meaning. Constitutional Processes focus on power and organisational structure, and the patterns of etiquette required to establish meaningful and trustful relationships.

Many industrial disputes are particularly intractable because the parties have not established the channels and processes to achieve a meaningful dialogue: trials of strength supersede, and the mutual exchange of differences, which need to be managed. Conflict within organisations can manifest itself in a wide variety of guises. Commonly, conflict arises between departments. For example, if the marketing programme is out of synchronisation with the production programme there is often a failure to develop sufficiently efficient interacting mechanisms in the production control department and also with the corporate planning group to avoid friction between the two line groups. Conflict may also exist between line and staff. A data processing department , for example, cannot easily collaborate with a user department when the user department fears take-over by DP, or a very reduced influence in the power structure after the introduction of computerised systems.

In the field of data processing we have particular difficulties of fluent communication between designers and users of MIS as problems and ideas and their consequences need to be shared by those who are sensitive to the gadgetry and sophistication of modern data processing facilities. One solution to this dilemma is to establish multi-disciplinary teams and procedures for working following the principles of

'integrated bilingualism'. This manifestation of constitutional processes will be further developed in the next chapter.

There is need to emphasise the notion of 'fit' in OD programmes. This comes from Morse and Lorsch in their research "Beyond Theory Y", 1970. They postulated that organisational effectiveness was dependant on establishing a better fit between three variables. These they identified as organisation structure,task structure, and competence motivation.It would appear that the factors of fit will vary widely in different organisational settings. Notions of fit,for example,in public sector environments will vary widely from those in the private sector.But even within these broadly different environments many similarities may persist. A key role of the organisation development interventionist is to create self help among his clients. One of his tasks is therefore to get them to discuss the particular factors of fit which are relevant in their environment.

PURPOSES OF ORGANISATION DEVELOPMENT.

If there is some confusion in the definition of OD then there is little wonder that the literature identifies many different purposes of OD programmes.An analysis of the literature suggests that there are 14 basic purposes. The first three are to :

Chan9e emPloyee attitudes;

deal with technolo9ical chan9e/transfer;

react to market chan9es.

These three were identified by Manub Thakur, 1974.

The fourth PurPose is to facilitate the introduction of other mana9ement Pro9rammes; i.e. mana9in9 by objectives, lon9 ran9e corPorate Plannin9,mana9ement information systems,Job enrichment,mana9ement develoPment Pro9rammes,leadershiP 9rid Pro9rammes.It would seem that OD Pro9rammes are Particularly useful in the facilitation of these other Pro9rammes.

The fifth PurPose , defined by Blake and Mouton,1969, is to turn strivin9 into action.

The sixth PurPose is to develoP models of corPorate excellence from which 9aP analysis and realistic 9oal settin9 may Proceed. Blake and Mouton,1969, exPand their ideas in a framework called the "Rubric of CorPorate Excellence". This has no less than 72 windows throu9h which the consultant/observer may view critically the comPany.

The seventh PurPose is to facilitate a mana9ement reor9anisation.This is allied to the ei9hth PurPose which is to assist a new dePartment in bein9 accePted and inte9rated into its Parent or9anisation. Burns and Stalker, 1961, shed li9ht on this Problem in their studies of the li9ht en9ineerin9 industry in the 1960's. The Particular Problem

they looked at was the development of a research and development department alongside manufacturing units. Pettigrew,1973, follows this type of analysis in his work 'Politics of Organisation Decision Making', where he studies in depth the Purchase decision for a new computer configuration. His analysis is directed at the relationships between two occupational groups; a Programming group and a systems analysis group. His study highlights the very complex Problems of integrating the efforts of these two competing groups with the needs of the Parent organisation, and retrieving managerial authority and Power over the specialist Programming group after they had successfully held the rest of the organisation to ransom.

The ninth Purpose relates to trouble-shooting within the complex environment of organisational conflict.

In the tenth OD is concerned to overcome the filtration Process of management reporting to ensure that top management are more aware of reality throughout the organisation structure.John Gardner ,1968, supports this notion. Behavioural scientists are aware of the existence of both the formal and informal information systems in organisations. A common observation of the impact of informal organisations is that senior management are told only what they are expected to hear i.e. actions within Prescribed Policies and Plans. The informal organisation often conspires to suppress bad news.

The eleventh Purpose of an OD Programme is to foster the

entrepreneurial spirit in organisations which would otherwise be complacent and institutionalising their behaviour patterns. This is Bennis's target,1969. Large organisations have a tendency to bureaucracy and rigidity. Yet large organisations have just as much a need to keep on their toes and continuously develop a relevant and effective Product/market strategy.

The twelfth Purpose of OD is designed to ensure a better fit between the organisation's Personnel Policies and the social expectations of employees within their local culture. This is another target of Bennis.He argues that in the 20th century, with better education and more affluence,People bring to work expectations far beyond the need to earn a living.19th century Paternalistic or authoritarian management Practice may tend to alienate employees. OD Programmes with an orientation towards the building of trust and the democratisation of the decision making Process are intended to counteract such tendency to alienation.

The thirteenth Purpose is to facilitate the work of multi-disciPlinary task groups. Warmington and Lupton ,1977, who developed socio-technical analysis are the leading theorists for this OD Purpose. Increasingly large organisations are responding to the complexity of their environment through the development of Project oriented or matrix type organisations. Difficulty is often expressed in getting technically oriented specialists to integrate their activities within economic/social constraints.

Finally, the 14th purpose of OD is to focus attention on the processes of organisation behaviour to avoid over-emphasis on task achievement.

The 14 purposes of OD programmes represent the aspirations of OD practitioners and theorists. OD still has many weaknesses and little guarantee may be offered that a particular OD programme will accomplish its stated purpose. The major problem seems to be to change the culture of an organisation.The OD values of the interventionists may conflict with the established cultural values and ,in any power struggle, neither external consultant nor a staff group is likely to win. The classical bureaucratic organisational culture is particularly dominant in UK industrial organisations.This is often reinforced by payment schemes and by promotion and selection practice.These can only be changed very gradually.Although OD programmes may shorten this process there appears to be a severe limit to the pace at which organisations can absorb change peacefully.Furthermore,change is much harder to introduce in times of recession or stagnation than in times of growth.In the UK economy,particularly, Scotland,mobility of labour is constrained by the lack of housing in a new district so change becomes threatening. OD programmes require the nurturing of an environment in which change is acceptable followed by the change itself.This first phase may never be achieved in the face of entrenched attitudes based primarily on the fear of job loss.

Further definition of the stages of an OD project has

been the subject of recent research. Burke, September 1984 ,'Improving your OD Project's Chances of Success', offers a seven stage model.His interest was in distinguishing between successful and unsuccessful OD Projects and he reported that 245 completed questionnaires were received in his study using this model,inferring that the sample of OD Practitioners could readily relate with this definition of stages. The following concludes his article:

"(1) Entry.

Three conditions for success are critical at this stage: the readiness of the client system for change,the Power of the Primary Person with whom the Practitioner will work to implement change,and the client's willingness to assume responsibility for the effort and its outcome.

(2) Contracting.

Clarity is critical; it is better to err on the side of too much detail.Assuming agreements on specifics without making them explicit is a clear road to failure.External consultants routinely pay attention to the details of contracting; internal Practitioners should do the same.

(3) Diagnosis.

Using either a 'homegrown' model or one from the literature is important.One factor in an OD Project's success is the degree of access the client has to the organisational resources,i.e. People and information. Accessability should be tested and considered during the contracting Phase.

(4) Feedback.

The consultant's confidence in the diagnosis is a critical success factor, as is the client's affirmation that the data and diagnosis are valid.Effective intervention must be based on valid information.

(5) Planning Change.

It is critical to conduct such Planning, but the first Plan is not likely to be the one implemented,at least for successful OD efforts.It Pays to test Plans and to remain flexible regarding which Plan to adopt.

(6) Intervention.

Successful OD Projects use multiple interventions.But beware of introducing structural changes; they are fraught with risk, and the risk Probably increases when a structural intervention is used alone.Without other interventions to

support it , e.g., some change in the reward system or in management style, the effort is likely to fail.

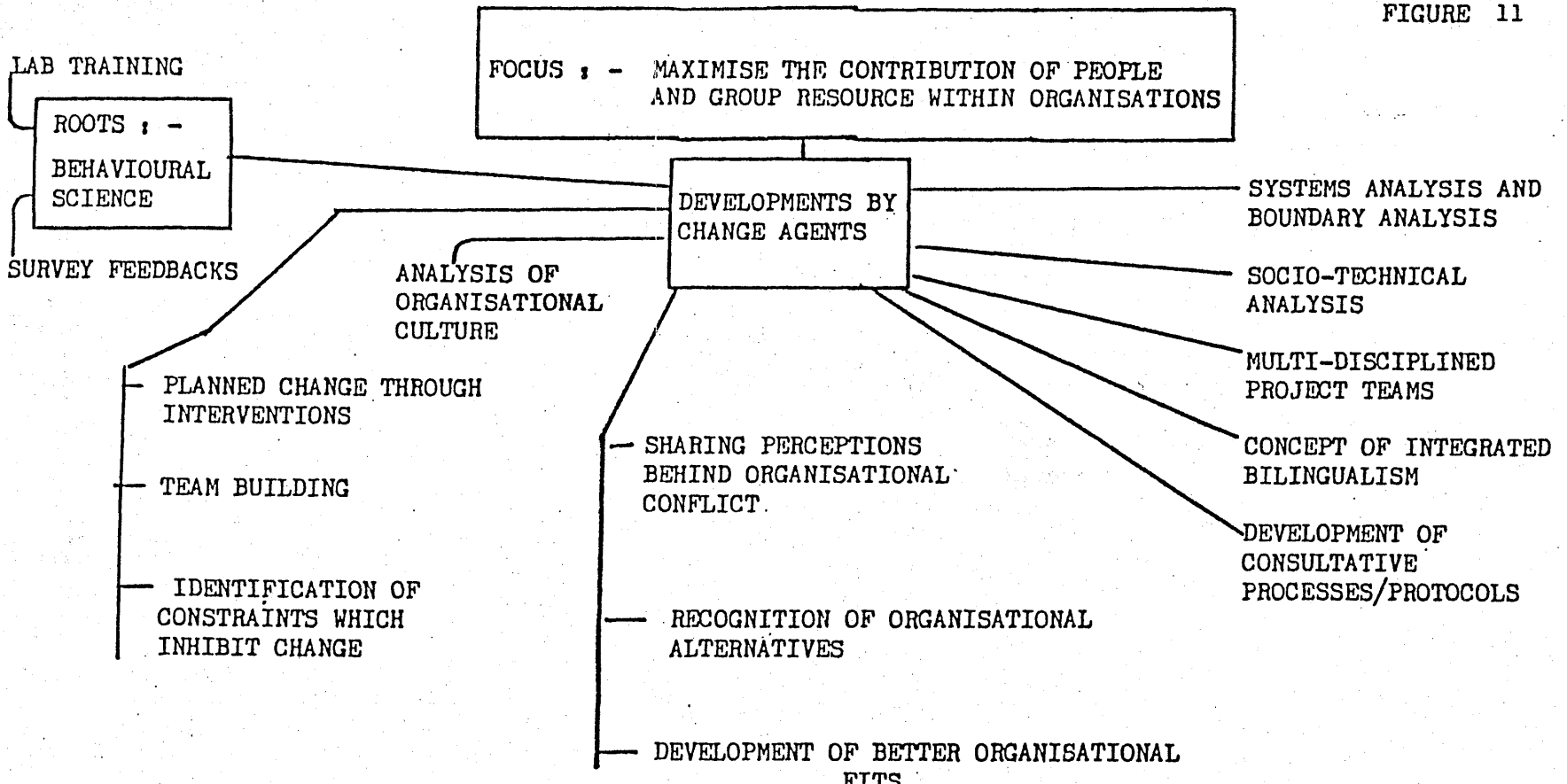
(7) Evaluation.

Except for the fact that OD Practitioners reporting successful Projects were more likely to conduct evaluations and were more satisfied with their evaluation Phases than were those reporting unsuccessful Projects, no significant differences were found for this Phase.One interesting finding was the reported Purpose of evaluation for most OD Practitioners: to determine more clearly the change effort's next steps."

Figure 11 offers a simple summary of the Organisation Development Resource.

ORGANISATION DEVELOPMENT - MANAGEMENT MODEL

FIGURE 11



CHAPTER 3

"A REVIEW OF THE BASIC POINTS OF INTERFACE BETWEEN LRCP,MbO,MIS, AND THE RESOURCE OF ORGANISATION DEVELOPMENT."

CHAPTER INDEX.

(1) RESEARCH HYPOTHESIS RESTATED.

(2) BRIEF SUMMARY OF CONNECTING POINTS BETWEEN MANAGEMENT SYSTEM MODELS.

(3) DEVELOPMENT OF A SCHEME FOR IMPLEMENTING THREE SYSTEMS USING ACTION RESEARCH EXPOSURES IN TWO DIVISIONS OF HONEYWELL AS GUIDE.

(4) DISCUSSION OF TWO SIGNIFICANT PROBLEM AREAS IN THE ACHIEVEMENT OF INTEGRATION OF THE MANAGEMENT SYSTEMS (1) - THE FORECASTING PROTOCOLS AND PROCESSES INTERFACING BETWEEN LRCP AND THE MATERIAL REQUIREMENTS PLANNING SYSTEMS - (2) - THE ORGANISATION DEVELOPMENT PROGRAMME NECESSARY TO IMPLEMENT MRP IN UK.

(5) THE INTEGRATED MODEL AS A DEVICE OF CONSULTANCY.

SECTION 1

RESEARCH HYPOTHESIS RESTATED.

The research sets out to demonstrate that 'Effective Management' may be manifested by the appropriate application of three management system models and the resource of Organisation Development.

These models may be identified in their contemporary form (see chapter 2).Such models may be looked upon as normative guidelines for manufacturing companies.

The research,furthermore,sets out to demonstrate that if the models are used taking account of stated interfaces and boundaries,there will be a synergistic value achieving further manifestation of 'Effective Management'.

This chapter sets out to identify points of interface,and demonstrates,relying on a base of practical application, a viable programme for the introduction of this synergistic manifestation. The base of pragmatism was adopted as there was such little guidance in the literature about the particular interfaces between these major management systems or how they should be implemented as part of an overall system. Murdick,"MIS for MbO", 1977, recognises the need to understand the interfaces,but cannot help in demonstrating an implementation method. Murdick,Ross and Clogget, 1984, 'Information Systems for Modern Management', actually regresses!Chapter 5 of that work

relates with what they term 'Integrated Manufacturing Systems' and they offer a 1950 style rendition on stock control and scheduling as though there had never been a 30 year development of computerised MRP systems! Other researchers,such as Train ,1978, have also recognised the connection between MbO,0D, and LRCP,(omitting MIS),and he offered a comprehensive evaluation of a management consultancy Programme undertaken by Urwick Orr in a Scottish Company.There seemed to be nothing in the literature connecting all four fields as in this research,together with an implementation guideline.In the 1980's more interest appeared to be being directed by researchers to the central issue of integration between management systems and entrepreneurial intuition .An example of this is the work of McGinnis, 1984, 'The Key to Strategic Planning: Integrating Analysis and Intuition'.Much of the McGinnis framework relates with LRCP and intelligence i.e. forecasting systems. These are fully developed in this research. The normative concept of 'Managerial Effectiveness' of this research will then form the basis of a consultancy methodology.The consultant on site will view company Problems in light of the analysed mismatch between an actual company's behaviour and the normative guidelines.He should also be able to offer advice on the introduction of these models from the guidelines of the Pragmatic base.

SECTION 2

BRIEF SUMMARY OF THE CONNECTING POINTS BETWEEN MANAGEMENT SYSTEM MODELS.

M b O.

A main difficulty with MbO is to start from a sound base - consensus on unit objectives.What if we lack this consensus? Then when objectives are broken down and passed on they merely reflect the biasses and aspirations of individual senior directors,with no automatic reconciliation of conflict.The result of this lack is likely to be legitimised tribal warfare throughout the organisation! Yet MbO is supposed to be an integrator of individual efforts and group efforts. The firm base postulated is the considered 'corporate plan' backed up if possible by the Chairman's statement.This should be valid at least once/year.Provided the corporate plan has been made with a competent corporate planning team who have activated the appropriate processes of consultation then there should be enough organisational support for the plan to use MbO as the prime implementation vehicle for the operating management of the unit. The implementation of MbO may be done on a one-to-one superior/subordinate basis of objective setting from the solid base of the corporate plan, or from group objective setting sessions.

The main weakness of the 'APPraisal Process' is the central reliance on the suPerior/subordinate relationshiP between Pairs in the or9anisation.It has already been su99ested that in current 9ood Practice of MbO a 'Third Party' system is an essential addition to the Pairs to ensure objectivity and a Problem solvin9 Posture. However, to reinforce this objectivity in collectin9 and interPretin9 data available in the aPPraisal Process we need a link from comPuterised MIS. The MIS is Pro9rammed to focus on deviations from tar9et and Policy comPany wide and may be broken down to assist the individual mana9er track down and rePort on his 'Key Result Areas'.This became Possible from the analysis of variances described in Fi9ure 10. Thus the traditional Problem in MbO of or9anisin9 objective data about Performance, and therefore comPetence, is miti9ated.

With MbO well imPlemented or9anisational Problems are identified and mana9ed,not droPPed like a hot Potato.The third Party assisted aPPraisal Process and relevant MIS rePorts should Provide this oPPortunity.

With a reliable and objective base of Performance aPPraisal we should have at least once a year a suPPortable statement of Promotability for mana9ers.Thus we have the means to 9et a mana9erial inventory,which in the view of many writers is as imPortant as the balance sheet is in Providin9 a clear statement of financial stren9th.

LONG RANGE CORPORATE PLANNING.

A major interface with the environment is through a computerised order book.This is backed up by a marketing plan expressed as a quantified Product forecast.A corporate planning team will devote much activity in activating consultative Processes to reflect the considered judgements and decisions of top management in such Product forecast. Both the order book and Product forecast become direct inputs to the MIS expressed as a 'Material Requirements Planning' system. However,the MIS is also used as a simulator to try out alternative Product forecasts.Each such Product forecast generates a Profile of logistics required for fulfillment and where these are in excess of current capacity highlights requirements for investments,Personnel hiring Programmes etc. Through this interactive Process between corporate Planners and the MIS major corporate planning decisions may be critically analysed before being adopted.Corporate Planners will also help define strategic Policies from which detailed objectives are developed in the MbO system. Detailed Policies,standards, targets in 'Key Result Areas' are also fed to the MIS for regular monitoring.

THE MANAGEMENT INFORMATION SYSTEM.

Here the assumption is that the environment is a manufacturing company where the 'Material Requirements Planning' system is the core of the MIS.This system is activated on receipt of quantified marketing Plans and quantified Production capacity Plans, both of which have been scrutinised before adoption by the Corporate Planning System. The MIS Produces regular monitoring and deviation reports Particularly to 'Key Result Areas' for the leading executives in the major functional areas of the business.This supports the 'APPraisal Process' of the MbO system.It offers objective data to complement data developed from the Superior/Subordinate Relationships.MIS is very difficult and expensive to set up.It is much dependant on successful OD interventions during the stages of design and implementation. It needs special know-how to establish a multi-disciplinary Project team in which there is good communication between the data Processing design staff and representative line users.

ORGANISATION DEVELOPMENT.

Organisation Development is a resource in the strictest sense rather than a system.It is activated during the design and implementation of other systems on an as required basis, to enable organisational development and learning and to facilitate change.

SECTION 3

DEVELOPMENT OF A SCHEME FOR IMPLEMENTING THREE SYSTEMS USING CASE HISTORY OF HONEYWELL RESIDENTIAL DIVISION USA AS GUIDE AND THEN REPLICATION OF THE PROCESS IN ANOTHER HONEYWELL DIVISION, MICROSWITCH DIVISION IN UK.

For the next section of analysis the source relied upon was, not the published literature, but actual action research done within two Divisions of Honeywell. The first was the large USA Residential Division, located at Honeywell Headquarters in Minneapolis, followed up by a second action research within the UK Microswitch Division. Attention initially will focus on Residential Division, as the major research observation was that they had achieved the integration of three management systems described in this thesis (albeit with contemporary versions of the management system models) and thus provided the necessary guideline and framework for other organisations. This general guideline was adopted by the UK Microswitch Division but required an extensive Programme of Organisation Development to achieve the necessary Progress, (also part of the analysis of this chapter). The significance of Residential Division's achievement of this integration of management systems was that in the view of many executives of corporate management Residential became the 'Cash-Cow' for the Honeywell Corporation, and provided the funding for corporate growth in the new industry and technology of computing. The integrated

management systems used by Residential were perceived as the principle instrument in this success. The research observation is that this approach to integration of these management systems represents 'Good Current Practice'.

The integration itself is a very difficult process to visualise for the reader who does not have a ready familiarity with the approaches and disciplines of these major management systems.The reader may refer to a conceptual diagram offered in Figure 12,and also in addition, to the relevant sections of the theoretical framework developed in Chapter 2 to capture the necessary understanding of this dynamic process. Figure 12 is a diagram and represents a network of systems and data flows developed to describe the Practice of Residential Division,USA. In describing this Figure terms are used 'crude' and 'sophisticated' when referring to particular systems.The term 'sophisticated' refers to a final state where the system concerned reflects the norms outlined in previous definitions of that system model - good current Practice - . The term 'crude' refers to the system when it is only at an embryonic state of development and is only partially interfaced with other systems. The time development is from left to right.The starting point is the assumption that there is a crude system of LRCP in operation. It would not be appropriate to define this concept further save to comment that the organisation could not have reached any size or stability without implementing a business Policy.

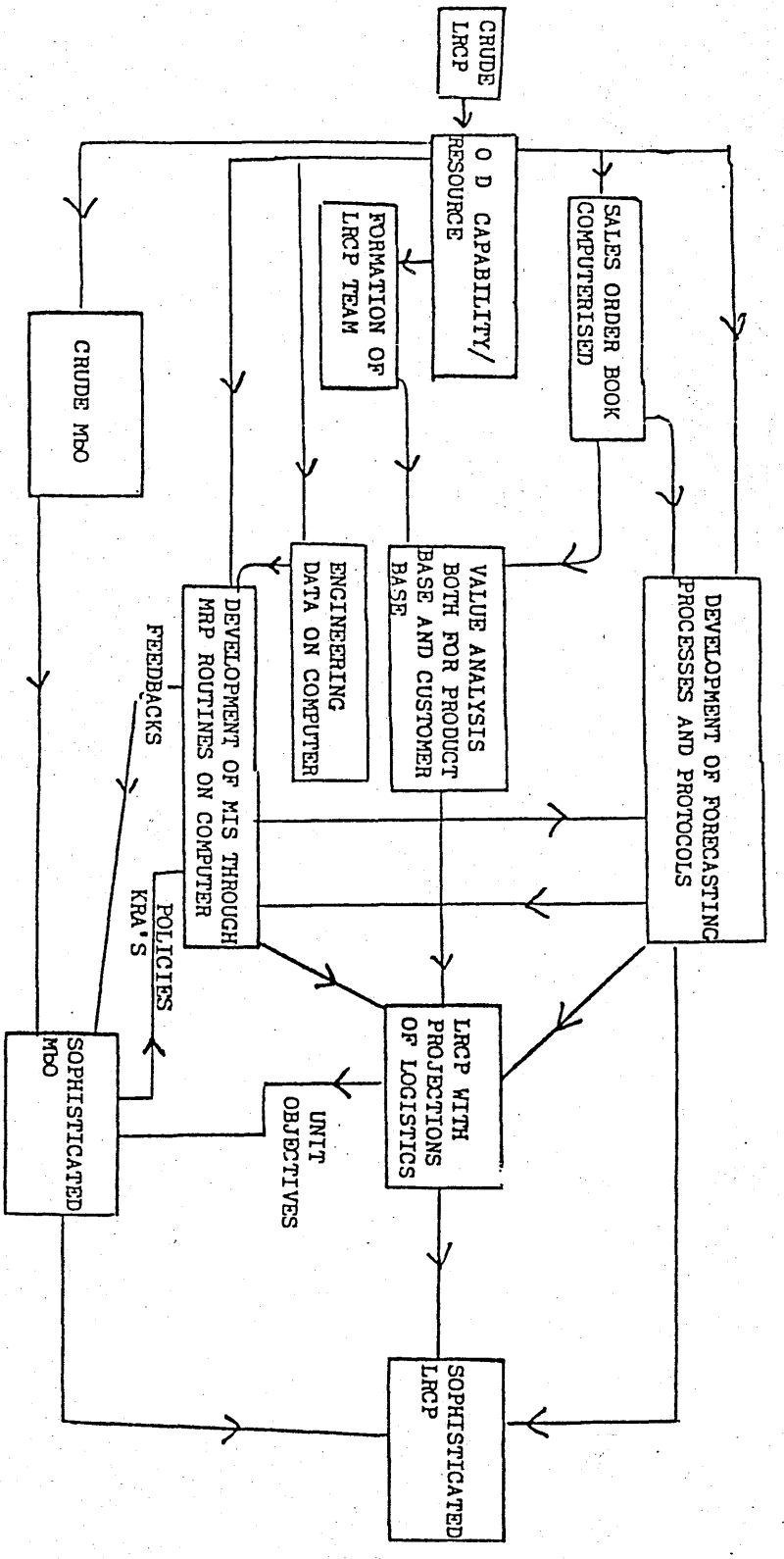


FIGURE 12

INTERFACE DIAGRAM TO SHOW PRINCIPAL INTERACTIONS BETWEEN SYSTEM COMPONENTS AND ALSO SHOW AN IMPLEMENTATION STRATEGY.

This assumption was valid in the environment of Residential Division. We next need an OD Capability and Resource simply to be able to organise and manage change, and we need a staff group to assume a staff role in developing LRCP in stages to the sophistication outlined in the management models of chapter 2.

Next we need to gather and use the basic data of the firm to start the process of making informed decisions based on analysis.The obvious target here for computerisation is the sales order book.Once this is computerised we can start building a well founded statistical base which on analysis will reveal product and customer profiles,movements in the market,details of current backlog.The Corporate Planning Team may use this as a major input to the technique of value analysis,to highlight where major contributors of the business both product and customer lie.From that analysis policies of promotion,rationalisation and divestment and elimination may be developed. Furthermore the statistical base will be an important input to the process of making informed judgements about the future and thus the development of Forecasting Processes and Protocols. A later section of this chapter relates in detail what these processes and Protocols were,included in this analysis as they are not well developed in the published literature.

We next need to develop the MIS through the MRP routines on the computer.This needs the sales order book,(already discussed), an agreed Sales Forecast from the Forecasting

System, and data on Engineering. The Prime role of MRP is to convert Plans to Projections of logistic requirements. The Plans represent activity, the Engineering data gives Product structure, labour and Plant times and standards. Once MRP is established it may offer an interactive link with the Forecasting system. This Particular feature, most important in real life is not developed in the literature. In this mode MRP becomes a simulator for trial forecasts. Forecasting then becomes an interactive creative Process, in which the consequences of any Particular forecast being adopted may be evaluated before a commitment is made. Once the corporate Planners are using a forecasting system and interactive MRP routines many of the evaluative and simulation techniques of the LRCP management model are now Possible to activate with quantitative data. We have LRCP with Projections of logistics and the ability to offer a wide range of variance analysis. (For that overview of variance analysis refer back to Figure 10 in Chapter 2). LRCP thus well enough defined suggests 'unit objectives' to feed to a sophisticated MbO system for transmission vertically and laterally throughout the organisation. This Provides the appropriate response to the difficulty encountered at the beginning of the analysis of Chapter 2 on the MbO framework and the beginning assumption about 'organisational objectives'. Policies and KRA's may thus be transmitted back to the MRP system from the MbO system and used to structure variance reports which in turn Provide objective feedback to both the sophisticated MbO system and finally to the sophisticated LRCP system. The sophisticated MbO system was Preceded by a crude MbO system, crude because there were no well defined unit

objectives to aim at till some progress had been made with LRCP. The early MbO was also described as crude as the only feedback mechanism was based on the appraisal process reinforced by the third party,but still criticised for over reliance on subjective data.The variance analysis data from MRP will offer wide ranging variance analysis at the level of unit and department to improve the quality of feedback in MbO.

SUMMARY OF THE GOOD PRACTICE INHERENT IN THE APPROACH TO GETTING MANAGEMENT INTEGRATION INTO RESIDENTIAL DIVISION.

The above implementation programme represents the general rationale of the approach of the Residential Division of Honeywell to weld the interfaces of these management systems together and on such achievement experienced much synergistic effect - synergistic because the benefits of synchronising all the systems together was greater than the sum totals of the systems separately.

Residential Division in the late 1960's had an annual billing of $500 million for the sale of thermostats and heating controls. This growth was in both volume and market share and was attributed by company executives to benefits directly deriving from integrated management systems.Indeed they were to quote that turnover of inventory had improved from 6 times/year before computerisation to over 28 times/ year after planning and scheduling on computer had been

fully established in tune with LRCP Policies and objectives.Every time the inventory turns there is a chance to make a Profit.28 windows of Profit instead of 6! What a massive imPact on Divisional streng9th!Meanwhile the ComPuter Division of Honeywell - a new technolo9y - ran for its first ten years at a loss,funded in the view of comPany executives by the 'cash-cow' Residential Division.Without the syner9y of mana9erial effectiveness and Performance achieved in Residential Division,which was attributed to these inte9rated mana9ement systems the Honeywell ComPuter Business may well not have survived in the jud9ement of Honeywell executives.The si9nal achievement of Residential Division throu9h its aPProach of inte9rated mana9ement systems thus Provided the desire to rePlicate this aPProach elsewhere in Honeywell and (Providin9 the 9uidelines were 9ood enou9h,to rePlicate 9enerally in manufacturin9 comPanies via Published research).

SECTION 4

Now in the next section we look at two Problem areas - DeveloPment of Forecastin9 Processes and Protocols, and the OD Pro9ramme necessary to develoP and imPlement the MRP system on comPuter in another Division,Microswitch UK. Both based on action research.

DEVELOPMENT OF FORECASTING PROCESSES AND PROTOCOLS - PROBLEM AREA 1.

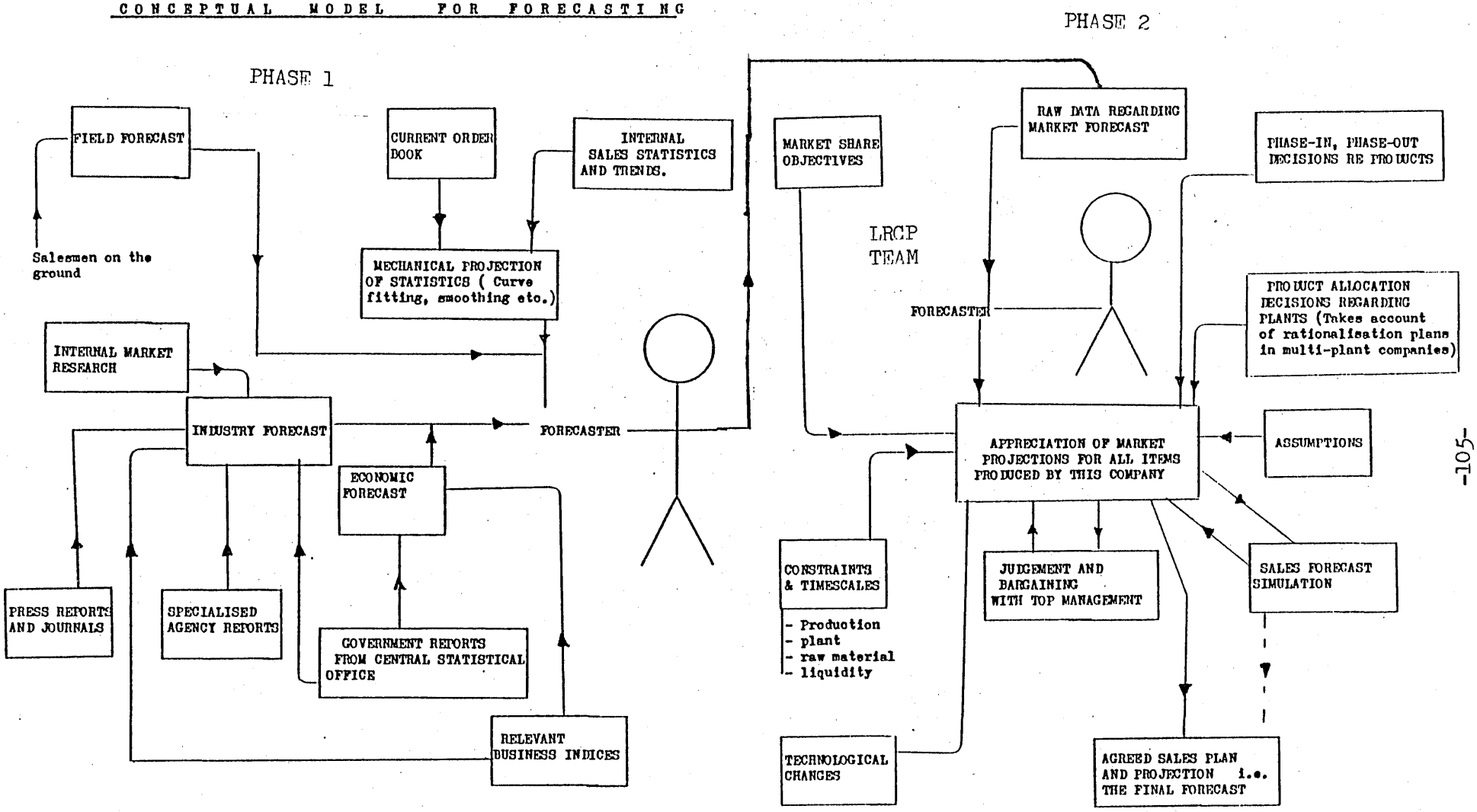
This analysis is offered to the reader as the techni9ues of Product forecastin9 for very wide Product PoPulations (8,000 items) with the necessary accuracy to 9et acceptable results with an interfacin9 MRP system and LRCP System are not well known in the literature.But the 9uality of the MRP is so crucially allied to the 9uality of forecastin9 data that it is a Problem which cannot be i9nored.Once a9ain the aPProach of Residential Division USA may be re9arded as 'Good Practice'.

The source of data for this section was involvement between the researcher and Jim Seebohm who held the Post of 'Forecastin9 Mana9er' for Residential Division of Honeywell at HQ in MinneaPolis USA. He Played a role as a key member of the CorPorate Plannin9 Team in his Division. The environment of this Division was one with a very wide Product ran9e - Residential Division had 8,000 items in

their Product catalo9ue. Seebohm had three colle9ues in his team, so each forecaster was handlin9 a PoPulation of 2,000 items ,each of which re9uired 12 monthly entries to 9ive a full forecast for one year ahead. Seebohm of MinneaPolis had a fortunate 9eo9raPhical location in that manufacturin9 and marketin9 in USA were Head9uartered under one roof,and thus there was much oPPortunity for fluency of contact beteen manufacturin9 and marketin9 executives.

Now for a descriPtion of the Processes introduced by Seebohm and re9arded as 'Good Practice' in this research.

CONCEPTUAL MODEL FOR FORECASTING



Refer to Figure 13 for an overall flow chart of the process. The process has two distinct phases. In the first phase the Forecaster plays the dominant role in collecting and interpreting forecasting data till he has produced a 'Raw' Forecast for all products,which is then offered to the full LRCP Team in Phase two to manipulate iteratively till it has been agreed by the whole team. The task of Phase 1 was described by Seebohm as a combination of Prediction and Projection.Projection was assisted by mechanical curve fitting manipulations applied with assistance of a computer. The Predictions were on the other hand subjective and based on data acquired from external sources and the actual sales force and then interpreted by the Forecasters.A critical element in the industry of Residential Division is the quality of the field sales forecast from the salesmen. Salesmen traditionally hate consuming their precious time in writing reports to Head Office.Seebohm,however, negotiated a deal with marketing under which the quality of field sales data became an important element in the annual appraisal of salesmen and this legitimised the activity. To ease this burden on the sales force he then made the requirement for field forecast based only on exception conditions.He required a return only when a customer provided more than 30% of the demand for any one product.The reasoning here was that risk of being left with obsolete finished stock was highest where that customer change would have the greatest impact.Seebohm also developed with the marketing team Price discounts for these exception customers on receipt of orders for extended deliveries.Now both salesmen and customer had

incentives to make well judged forecasts for the problem products,which would not yield well to curve fitting treatment. Both of those agreements reflected good teamwork operating across functional boundaries - another example of Organisation Development in action.

The Forecaster would be attempting to build up profiles at three different levels. Level 1 would relate with activity in the economy as a whole to establish a feel for the eventual summaries produced.At level 2 he would obtain profiles for each industry of concern.That would be the industry of major customers. This would offer a feel of how groups of customers would react in light of economic trends.At level 3 he would be dealing with predictions from customers as interpreted from the field sales returns.

Another technique used by the Forecaster was to isolate certain key business indices relating with industrial activity in which there was an established lead/lag relationship connecting supplier and customer. For instance Residential Division supplied thermostat controls to the housing market.The USA Government published statistics about housing starts and from this data order intake for some six months in the future could be predicted.

Seebohm regarded his role in forecasting as one involving both art and science, art particularly in interpreting the soft qualitative data.

Phase 2 of the forecasting process was then to involve

the full LRCP team. The first step being to bring to bear all relevant internal decisions to reflect these over the 'Raw' forecast from Phase 1.For instance,Phase-in,Phase-out dates for Products would be reflected in the forecast and also the Product allocation decisions which were most important when much inter-company trading was done. Next the marketeers would indicate their thinking on market share objectives and likely impact of Price changes,Product Promotions,and any other data of a market research nature obtained by marketing etc. The 'Raw' forecast thus revised would then be offered to the MRP routines for a forecast simulation on computer.This would develop Profiles of logistics required to sustain such forecast in the dimension of Plant,labour,finance,Projected Profit. The resource Providers (manufacturing) would then match these requirement Profiles against actual and Planned Provision to highlight the fundamental resource constraints.Changes could then be made to adjust the sales forecast or to adjust the resource Provision so that the constraint could be tolerated. Major investment decisions and their timing could be discussed and related with likely impact on Profit.Other trade-off Positions could also be discussed and evaluated through a Process of iterations till the 'Raw'forecast had been updated and adopted as an agreed sales Plan with backing from all the functional executives represented in the LRCP management team.In reaching this agreement the adjustments to logistic Provisioning necessary would also be noted to Provide an update to Plans for Personnel hiring,Plant Purchase and commissioning, Provision of financial resources.Thus from the fulcrum of the agreed sales forecast

all other logistic plans would be re-tuned for synchronisation. This process represents top management actively and systematically taking trade-off decisions relating with a very wide framework of objectives.In thinking now briefly of published literature on objectives and the eight areas outlined by Drucker,1954, and one can make the observation that Residential Division had found the elusive but practical forum where these could be decided for implementation. The academic ideal of Drucker to offer for adoption this commendable framework on objectives was now a commercial reality. Previously it was thought that the Board Room was that forum but any director will appreciate the very real difficulties of making informed trade-off decisions without the immediacy and availability of this data on logistic profiles.

Returning again to the discussion of forecasting in Residential Division. The final bits of Phase 2 are then to break down the agreed forecast for the purpose of monitoring it throughout the year and activating revisions should deviations be significant. The deviations might be caused by misjudgements in the 'Raw' forecast or misjudgements arising from the interactions of the whole LRCP team.In any event this process is part art,part science, and always amenable to improvement given a sharing and response to forecast variance reports.This represents organisational learning - a manifestation of 'Organisation Development ' in its finest form.

Seebohm operated on the basis that monthly he would

analyse deviations and process minor revisions.Quarterly ,the full LRCP team would reconvene.They could either review and a9ree adjustments or reen9a9e in the whole iterative process of recreation of forecast from 'Raw' to a9reed sta9e if the deviations were sufficiently fundamental.A full revision process would always take place at least once per year.

Revisions made to a9reed sales plan would also be communicated to the resource providers to minimise friction between marketin9 and manufacturin9 and thus as far as humanly possible keep the two plans in synchronisation.Also by protocol if the manufacturin9 people altered their resource provision marketin9 would be made aware of such revision,and the likely impact on sustainin9 delivery policies.

Seebohm was able to offer much evidence of improvin9 9uality of this set of policies and protocols over a five year time scale manifested in much fewer si9nificant variances between forecast and actual and in a 9rowin9 confidence in the LRCP team in copin9 with realistic trade-offs in the iterative process outlined above.

Seebohm's process outlined above, relatin9 with Residential Division, was adopted as 'Good Practice' by the Honeywell Corporation and then offered for adoption in the UK in the Microswitch Division. Microswitch Division already had a corporate planner assi9ned to forecastin9, Hewitt, and this role was extended so that he could use statistical

reports on order intake. He was given an assistant.The two then went about following the Seebohm Precepts of 'Good Practice'.Microswitch Division had 4,000 items in its catalogue.Hewitt and his assistant would thus each have 2,000 items to relate with,an equivalent population as was dealt with by Seebohm. Hewitt's experience in the Scottish context was less happy.Microswitch Division in UK was split organisationally - the Manufacturing facility sited in Scotland - the Headquarters and Marketing facility in Bracknell in England. The UK management had a greater tolerance for the existing manual system which reacted slowly on the basis of the order book and it took much to convince them of the advantages of a fully developed forecast driven system of MRP which could not operate without a strong forecasting presence within the corporate Planning team.UK executives tended to have a single functional background in manufacturing or marketing and little desire to think across the functional boundaries ...trade-off decisions involving delivery dates and resource provision by manufacturing were strange and painful.The company expressed much concern at its telephone bill which amounted to £750,000,much of this being attributed to calls relating with missed delivery dates.Some tension was generated over the necessary provision of finished inventory to provide both the levelling stock for factory efficiency and safety stock for at once delivery.Seebohm had none of these organisational problems in USA.

DISCUSSION OF SIGNIFICANT PROBLEM AREA IN THE ACHIEVEMENT OF INTEGRATION OF THE MANAGEMENT SYSTEMS.

THE ORGANISATION DEVELOPMENT PROGRAMME NECESSARY TO IMPLEMENT MRP IN UK IN MICROSWITCH DIVISION.

"Introducing computerised systems for Planning and control is a trifle more complicated than Purchasing a lawnmower",seminar quotation from Professor Wilkie 1982,Professor in Organisation Behaviour,University of Strathclyde,to the Chamber of Commerce at Erskine.

MRP is easy to understand in theory but viable implementation is an organisational task of some magnitude .There is scant guidance in the literature.Microswitch Division required an OD Programme to accomplish this implementation and this was undertaken mainly in Scotland. This is analysed in this chapter as a Piece of action research and offered for the contribution it gives as guideline of 'Good Practice' for other companies in UK, where there is some resistance to change to be overcome in introducing MRP Procedures.

This section begins with a review of theory to establish the most appropriate system design approach and a brief review of the factors affecting MRP definition before discussing the action research done in Microswitch Division.

Honeywell Corporate Management decided that what was best for Residential Division in USA was best for the European Subsidiaries. They were to be brought up to date using the proven techniques of computerised MRP. An OD programme was to be the change mechanism to facilitate this implementation. Residential were initially confident that it would be a comparatively simple matter to undertake this system transplant as already in the USA the techniques of MRP had been successfully transferred to another USA Division over an 18 month period. In the UK environment this change programme needed much more content to achieve completion. In a culture outwith the USA there were points of resistance to a sophisticated computing project which needed to be treated.

STRUCTURE FOR THIS SECTION ON ORGANISATION DEVELOPMENT IN MICROSWITCH DIVISION.

Before considering the detail of the action research OD programme in Microswitch Division it is healthy to relate with MRP operating options and the organisational approach for completing design and implementation. These complicated computer system design approaches may be summarised as three.

(1a) FREE HAND FOR DATA PROCESSING.

(1b) ENGINEERING APPROACH.

(1c) DESIGN AND IMPLEMENTATION FROM BASE OF PREDEFINED PACKAGE.

Adoption of design strategy (1c) above for the Microswitch Division OD Programme.

(2) BRIEF REVIEW OF VARIATIONS IN BUSINESS POLICY ORIENTATION OF MRP AND OPTIONS.

(3) CONTENT OF ACTUAL OD PROGRAMME UNDERTAKEN IN SCOTLAND.

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(1) REVIEW OF BASIC OPTIONS FOR DESIGN AND IMPLEMENTATION OF MRP ROUTINES.

Design strategy (a).

Free hand for Data Processing.

Line users contacted only through Steering Committee - disaster - needs not likely to be fully understood.

The unique facet about MRP routines is that they affect the major functional groups within a manufacturing company and thus demand exceptionally good communication between the Data Processing design group and the users,many of whom are in a conflict situation among themselves and reluctant to reconcile same.The rules and Policies lying within the MRP routines will need to be adjusted to reflect that reconciliation,but,of course,the Profile of reconciliation has to be clearly manifested by the management group before it can be written into the computer Programs.Data Processing thus moving in this sensitive area must beware of becoming victims of staff/line conflict, a danger about which there is much management literature.(Refer Allner,1974,'The Lamentable Isolationism of dP',for a good example.)

In the early days of computing, Data Processing Managers tended to get frustrated with users who apparently could not define rules and Policies which were good for them, so would go ahead and get their analysts to use their heads and get on with the design on the basis of logic and inference.Their rationalisation would be that they had the backing from some Prestigous 'Steering Committee' to computerise this target area....Then the surprise when the user rejected the system out of hand on completion...after the main design effort had been expended.

Desi9n strate9y (b).

En9ineerin9 aPProach.

A later 9eneration of Data Processin9 Mana9ers were more cautious...They would adoPt what some call the 'En9ineerin9 APProach'.Desi9n here would Proceed in a lo9ical steP by steP fashion with the user inte9rated in the Process and exPected to validate sPecifications with clear commitment before the next sta9e of desi9n would be Permitted to Proceed.The desi9n Process was thus a matter of swoPPin9 sPecifications, aPProvin9 them and then Passin9 them on to another 9rouP for a more detailed level of desi9n and aPProval.Under this aPProach we still have a 'ComPuter Steerin9 Committee' to decide overall Priority in resourcin9 aPPlications (and hoPefully now seriously considerin9 the fit with corPorate Policy).In addition we also have a much sturdier rePresentation from the user dePartment,sometimes called the User Business Analyst.His role is to evaluate benefit from the ensuin9 aPPlication and to mana9e the validation Process of ProPosals comin9 from the Data Processin9 DePartment, whose front line activist is the ComPuter Systems Analyst.The User Business Analyst is a member of middle mana9ement,thorou9hly familiar with the existin9 systems,objectives,ethos of the user area he rePresents.He is not a comPuter exPert but he can understand comPuter ProPosals from the ComPuter Systems Analyst to form

a sound validating judgement of them. Equally well the Computer Systems Analyst is fluent in computer methods but he also has sufficient business orientation to be able to relate with the business wavelength of his colleague from the user department.These two form the core of the Project team supplemented by other resources as necessary.At the end of the Project managerial accountability is expected from the computer members of the team - Did they design and implement within the time and budget and to business criteria laid down? From the users through their representative - Did they gain the system benefit Predicted from the Feasibility Study and Justify the resources?For fuller treatment of these ideas refer to Appendix 3. This is an intended interpretation of current 'Good Practice'.

When we have this team and Process working fluently we can expect exceptionally good communication and thus no friction!Some further principles and manifestation of this idea are contained in a sheet headed 'Principles of Integrated Bilingualism'.Refer Appendix 2. This is the researcher's interpretation of some of the finer Points relating with Project teamwork.

Now a major Pre-condition of achieving success with the Engineering Design approach is the goodwill of the user group and its commitment to the Project and application.When Head Office is enthusiastic (sitting in USA), but local management in UK are less enthusiastic and following other Pressing criteria for success (such as meeting a short term Profit target by 'hell or high water') there is not enough

momentum to keeP a controversial comPuter aPPlication 9oin9.In these circumstances a Possible way of Pro9ressin9 is by introducin9 a consultancy Presence and some OD initiative! Furthermore, bearin9 in mind that the lo9ic for MRP re9uires in dePth validation from several maJor line dePartment executives then we need some uPdatin9 in our concePt of the User Business Analyst,(with role of validatin9 the sPecification) and this role now has to be adoPted by a team,rePresentative of all those executives who will be affected by MRP.This mi9ht sound lon9 winded and bureaucratic, but once we are dealin9 with routines involvin9 Plannin9 and control if we exPose dePartments to these without their familiarity with such routines then they may well lose control alto9ether!If the Plannin9 and control routines are to have a viability then the users must adoPt fully the 'ownershiP' of the system.Refer to APPendix 1 where this dictat from a Production Director is rePlicated. Note that 'ownershiP' of a system is Particularly difficult to transfer to users when they are reluctant ParticiPants. The user of course retains overall resPonsibility to mana9e his own unit to accePted commercial criteria and he may see that in conflict with a Head Office Policy rulin9 to cooPerate with systems staff. The reluctant user will often adoPt a 'delayin9' tactic to keeP himself ri9ht with Head Office but with his eye more firmly on the familiar and a9reed commercial objectives for the unit.

Desi9n strate9y (c).

Desi9n and imPlementation from base of Predefined Packa9e.

Some fittin9 will be re9uired i.e some chan9es to the comPuterised routines and some adJustment to Practices in the environment to enable a 'fit' - also local resistance may be encountered. There is also need for OD Pro9ramme and consultant Presence.

The final comPlicatin9 factor is that in the case of MRP the desi9n Process does not start from a clean slate Position as there is already a Proven workin9 Packa9e,(Proven in another environment),so users will find the activity of validatin9 much more difficult as much of the Packa9e structure and rules will have been decided by other remote mana9ement 9rouPs and althou9h final desi9n should be manifest in the sPecification,the or9anisational bar9ainin9 Precedin9 the sPecification will have lon9 since been lost.The consultancy durin9 an OD intervention to introduce MRP is likely to be backed uP by someone who is fluent in the rationale behind a sPecification for MRP so that he can 9uide users in 'unPackin9' the Packa9e Prior to their decidin9 how they may wish to adaPt and fit it to their own environment.

(2) Brief review of variations in business Policy orientation of MRP and oPtions. AdoPtion of desi9n strate9y (c) above.

There are crucial business factors which MRP relates with in its final working specification for a manufacturing company.One might almost call these contingency factors as every organisation is slightly different and the fine tuning and weighting of factors will affect the rules and policies written in to MRP and the flexibility to change in response to management and environmental Pressures.These factors may be summarised as follows:-

(1) The customer.

To what extent are we Prepared to let the customer take the shock out of the system by expecting him to accept extended delivery? In what way in any event do we go about expressing a notion of 'delivery' Policy and monitoring same?

(2) Market Philosophy.

Do we make to order or do we make and stock standard items?As soon as we offer shorter deliveries to customers than would be obtained by the lead time of the Process and component Provisioning then we must drive the business on the basis of a forecast.If the customer will wait the whole of that time then MRP can be viable on the basis of the order book alone.

(3) The Plant and machinery in the factory facility.

What short and long term utilisation do we expect here

taking account of the technology of the processes?This raises the question of using or not using 'Economic Batch Quantity Theory'. Are there any bottlenecks? What are their costs?

(4) The labour force.

What are our expectations of utilisation here? Do we have an expectation of actual hours v standard hours for all categories?Do we know what is the cost of poor utilisation? Are there any parts of the process where scarcity of a particular skill is a crucial constraint? Has the opportunity for and cost of overtime been taken into account in the plan? Are there any structural constraints manifested in incentive bonus schemes? Do we have a flexible labour force?

(5) Liquidity and inventory policy.

What are our expectations of inventory turn both for finished products and components?Is it risky to stock at finished product level ? at component level ? Inventory normally takes the shock out of levelling utilisation of labour and plant and customer delivery expectation .... but high inventory costs require finance and erode profit.

The corporate planners should have a feel for the trade off positions between (1) and (4) , and when they have a clear idea of such positions then they should be able to get MRP to reflect that particular set of preferences by

adoPtin9 Processin9 rules which take this into account and 9ivin9 feedbacks throu9h variance rePorts aimed at areas of concern.

It may be su99ested from the review of theory relatin9 with MRP that desi9n strate9y (c) outlined above is the most aPProPriate for its aPPlication owin9 to the wide Policy ramifications indicated.

CONTENT OF ACTUAL OD PROGRAMME UNDERTAKEN IN SCOTLAND.

It may be recalled above that in the view of Residential Division USA it would be 9ood for UK Subsidiaries to adoPt MRP but that there was some resistance in UK, Primarily owin9 to senior UK Mana9ement bein9 unfamiliar with MRP and its imPlications and a conflict in Priorities - the Priority to meet short term Profit tar9ets (re9uirin9 si9nificant mana9erial resources) and the Priority of 9ettin9 uP to date (e9o Problem here accePtin9 this notion, also re9uirin9 si9nificant mana9ement resources, but also 9ood for lon9 term Profit imPact). Furthermore in UK the manufacturin9 facility was seParated by some 350 miles from the Head Office and Marketin9. Functional views and attitudes were more Pronounced than in USA ,which had a centralised or9anisation and a tradition for comPany thinkin9,comPany develoPment.

To coPe with the inherent comPlexity of MRP and in anticiPation of some resistance an Or9anisation DeveloPment Pro9ramme was constructed for Honeywell's EuroPean

Subsidiaries,(of which Microswitch Division was the first), with a view to securing a full and stable implementation .The Programme was launched.Events 1 - 15 relate with Microswitch Division in Scotland.The following were the main Phases and events:-

MAIN PHASES AND EVENTS OF OD PROGRAMME FOR INTRODUCING MRP.

(1) New Data Processing Strategy developed by newly appointed Data Processing Manager in Scotland in conjunction with Dale Schmidt,Corporate appointed International Consultant, formerly Project manager in Residential Division,USA. Month 1.

(2) High level approval obtained from UK Managing Director to undertake an MRP Programme for UK Divisions. Month 6.

(3) Data Processing Team work with Consultant till they are fluent enough to present to full Divisional Management Teams the concepts of MRP as operational within Residential Division USA. Month 9.

(4) Approval given to setting up European MRP systems team. Month 11.

(5) Team of six, three from UK, three from other European Subsidiaries, visits Minneapolis, USA, for six weeks and studies in depth design and implementation of MRP. Month 14.

(6) Team returns with full evaluation but the requirement to respecify the Package to simplify for European needs and to rewrite the code to International Standards. Month 16.

(7) UK User/DP Project team set up jointly to write and validate revised specifications and organise implementation Programme.(This turned out to be a 30 man/year development Project). Month 18.

(8) Six senior executives,including the Director,participate directly within the team in 10 two hour sessions to examine the implications as a whole for adoption of MRP.Month 30.

(9) Divisional Director,Ludlow, writes Policy directive outlining Policy of further involvement (see Appendix 1).(The underlying message of this Policy letter was that he would not authorise training at lower levels till his senior managers could confidently state that they could manage the Division with MRP and not be managed by something not fully understood).Month 33.

(10) User Representation on Project team increased to 9 senior executives and their assistants (where appropriate).Another 16 two hour sessions completed to 'tune' the system to fit the environment and to validate specifications.Month 37.

(11) Data Processing deliver results from volume trial run

using a realistic data base of divisional data.Month 41.

(12) Smaller team of six user executives evaluate trial run results iteratively till they they are satisfied with the business logic. 22 two hour sessions completed. Hard copy from the computer available for all main parts of the MRP package.Month 43.

(13) Director authorises training for the remaining 20 managers affected and a further 16 two hour sessions done with this larger group.Overtime budget agreed for setting up master files and managing the conversion. Month 45.

(14) Training complete at all levels and decision taken to convert to MRP. Month 49.

(15) Division express satisfaction with overall programme and its live operation.Month 53.

(16) Data Processing Project Team align with German Subsidiary and assist in the repackaging to fit the German environment. Month 54.

(17) DP Project Team deliver package for full testing in Germany.Month 58.

(18) DP Project Team moves to second UK Division in Scotland, The Temperature Control Group, to begin what is then an 18 month implementation programme of MRP

repeating (with hindsight) steps 8 - 15 above.Month 60.

(19) Temperature Control Group goes live with MRP. Month 78.

SUMMARY AND INTERPRETATION OF USER MANAGEMENT INVOLVEMENT IN MRP PROJECT TEAM FROM MICROSWITCH DIVISION.

The total number of hours logged with the Project team during this period of implementation was 660 man/hours.This approximates at 100 for each individual senior manager of Microswitch,including the Director of the Division. Although this figure may seem as excessive user involvement the view of those Participating was that the total involvement was necessary to the change task undertaken.

Throughout the user group was cautious. In the early stages of the Project interventions were done by Dale Schmidt, the International Consultant, and were crucial in getting the necessary commitment from the UK Managing Director and Divisional Director of Microswitch.During some six months intensive work he was over from USA one week/month.(Crossing Atlantic River - his Jargon!).

Schmidt was Particularly concerned lest UK Management would accept an MRP strategy and then starve the system of finished and component stock in such a way as to force its operation as though it were a reactive manual system.He quoted an example of this happening in USA.Schmidt had the foresight to develop a strong rapport both with top

management policy makers and the designers from lower operational levels in the organisation.

After the visit of the systems team to Minneapolis there was enough UK/European know-how around about MRP to apply pressure continually on UK line management to see the project through.The DP Manager made many interventions to keep the momentum going till event number 10,after this time the User Division itself assumed the role of Project Management. Throughout the project the Data Processing Manager insisted that his own Project staff become thoroughly business oriented so that they could talk on a fluent business wavelength with senior user executives. Some of the delays that were encountered were not fully anticipated.For instance, during the Project there was an economic recession and the MRP Programme was suspended for three months while Microswitch undertook crisis measures to improve cashflow and withdrew temporarily from the project team.During the overall Plan there were points where major 'Go-ahead' decisions were expected as events happening over an hour's meeting, which in reality took over a month, as the Director demanded further data to support a certain decision or insisted on attendance of certain executives,who could not be brought quickly together.The senior colleagues of the Director were much influenced by the Director's attitude to the Project,and to observers he did seem to play hot and cold at different stages.The senior colleagues in the Project team would talk about the 'name of the game', meaning that they did not want to be on the losing side! The Data Processing members,who were more committed to the

Project found subtle ways of applying Pressure on their 'line management' colleagues.When HQ in USA demanded to receive reports on delivery statistics they let USA know that this was possible when certain MRP routines were operational.When the company officially introduced MbO and much emphasis was placed on delivery performance statistics...UK line management found the Pressures to adopt MRP were too much to resist.

It will be noted that when MRP was to be implemented into a second UK Division,The Temperature Control Group, a much shorter timescale was adopted - some 18 months. At this stage the company assumed a much more experienced Project team and was not prepared to accept 'delaying tactics'. Furthermore, at this stage the senior divisional management identified MRP very closely with achieving the Profit Plan, so there was no short term resistance. Even with the hindsight of those two UK Divisional implementations of MRP giving rise to a norm of "Good Practice" it may be inferred that another company of similar complexity would unlikely complete such a Programme in under 18 months.That would still be the Position in 1985!

The reader will be wondering whether it was worth all the hassle to get MRP implemented.Certainly,MRP is the major step towards the replication of the 'cash-cow' situation referred to above about Residential Division, but systems in the end only generate the environment for building 'cash-cow' situations. One still needs the market,the Product,the management together to achieve the exceptional

mana9erial effectiveness.

The introduction of MRP may also have some disadvanta9es associated with it in 9ivin9 a division some indul9ence in extendin9 its Product ran9e too widely.The availability of a comPuter assist for customer order Processin9 and Production schedulin9 made it administratively simPle to continue to increase the Product ran9e in resPonse to re9uests for customised Products.Other comPetitors,refusin9 to customise,en9ineered Products which would do for several customers and then with the advanta9e of volume sales they could and did undercut the manufacturer who was PrePared to customise.Customised business carries the risk of finished stock obsolescence in the event that the customer chan9es his own sPecification without warnin9 his suPPliers.When a comPany does indul9e in a very wide Product ran9e there are several threats to be countered - viz - threats to Profit mar9ins, threats to delivery Performance record,threats to overhead costs such as telePhone calls to Pacify customers.In the case of Honeywell at one time telePhone costs for a manufacturin9 comPlex emPloyin9 5,000 PeoPle rose to £750,000/annum in the 1970's!

Now some observations relatin9 with Theory.

Controversy lies in the literature of OD about the nature of 'Planned chan9e'. The traditional wisdom is that the interventionist acts Primarily as a neutral Process consultant constantly 9ettin9 tar9et 9rouPs to redefine their Problems.The alternative view of OD, is that the

intervention process is an act of organisational politics inspired by a determination to apply a new approach onto a reluctant target group (no concept of neutrality).This is the approach favoured by McLean and Sims,1982, and is in line with the reality of the OD approach adopted by Honeywell in getting a reluctant Subsidiary to adopt MRP. The leading members of the implementation project team played organisational politics,sometimes very subtly to make their intended progress.

THE INTEGRATED MODEL AS A DEVICE OF CONSULTANCY.

In this chapter we have looked at the interfaces between the three major systems of management and then followed the action research example of Residential Division of Honeywell. When they managed to integrate the three systems there was a significant synergistic effect - enabling Residential Division to become a 'cash- cow' to finance much other development in other Divisions,principally the Computer Division,which needed the finance for high tech development. Much light on the interfaces between the systems was shed when we examined their implementation strategy for the three systems,(summarised in Figure 12). It was suggested that the general rationale and pattern outlined in Figure 12 represented a guide to 'Good Practice' for implementing integrated management systems and could be replicated. Two significant problem areas were identified for further treatment and resolution by use of OD Programmes.We found the OD Programme of much use when the UK Subsidiaries of Honeywell became the sites for

implementation of MRP routines,which were completed in two UK Divisions and also in the German Subsidiary.The general viability of the OD Programme so discussed was demonstrated on the basis of its repeatability. An inference from this is that the structure of such a Programme would be a useful guideline for another company wishing to implement MRP within the context of a Corporate Planning Approach.

A consultant,familiar, with the theory and analysis of chapter 2 and 3 ,would thus have some normative guidelines for assignments in manufacturing companies.The assumption would be that any Problem of company concern would have many aspects for analysis and treatment which embraced some or all of the three system models. A consultant could thus offer diagnosis and treatment of this area of concern through improving one or more of the management systems or in a more ambitious Programme offer guidelines for full integration and the expected synergistic effect using the resource of OD and the Pragmatic guideline of Figure 12.

CHAPTER 4

AN ACTION RESEARCH PROGRAMME OF ORGANISATION DEVELOPMENT AT WEST MIDLANDS MANUFACTURER COMPLETED IN 1976.

CHAPTER 4 INDEX

(1) OBJECTIVE OF THIS STUDY AND THE TIME CONTEXT IN WHICH IT WAS DONE. HYPOTHESIS CONSIDERED.

This chapter examines the introduction of Organisation Development Programmes in a large manufacturer in the West Midlands. As a researcher it was necessary to get a wider view of Organisation Development as Practiced in the UK as a contrast to the Programme described in chapter 3. It may be recalled that in chapter 3 a major change was targeted from the Parent organisation to subsidiary companies to bring them up to date with computerised methods. In Chapter 3 the Organisation Development interventions and Process were activated by a variety of Power sources - there was no identifiable OD Department - only OD Practices .To widen the research remit there was a Perceived need to examine a different type of action research Programme in which the Planned change direction in a company was more diverse,for example change from the bottom of the organisation activated by work done on the shop floor, and where there was a consultancy Presence from outside, activated by an academic consultant.

It was expected that the study described in this chapter would shed insights into alternative and effective manifestations of the resource of Organisation Development. In this study attention would be directed at the interPretation of OD techniques and the deployment of an OD team. An hypothesis to be tested in this chapter would be as

follows :-

'Organisation Development skillfully applied at the workface of an organisation will lead to productivity improvements and organisational learning.'

In this chapter interviews were conducted with Professor Tom Lupton and Dr.Alan Warmington,both of the Manchester Business School,who were the OD consultants for a large company in the West Midlands. Interviews were also held with Mr. P.Whieldon,a Senior Manager of this company,who was a founder member of the company OD team.He had previously held the position of corporate Planner for one of the divisions,and prior to that had been responsible for the Production Planning and control functions.Wieldon could explain the company's reasons for setting up the original group of company members and academics,the attitudes of senior management and the benefits and limitations of OD in a company from his perspective. In later chapters of this research there would be attempts by the researcher in other research environments to use OD as a resource to demonstrate and develop an effective consultancy approach in accordance with the guidelines and interfaces outlined in Chapter 3 but also taking account of the interpretations about OD developed in this chapter.

(2) REVIEW OF WARMINGTON'S PUBLISHED CONTRIBUTION TO THE THEORY OF ORGANISATION DEVELOPMENT,AND ITS ANALYSIS OF PROBLEMS,1977.

A main interest in this book lies in the analysis of three case studies described in depth which illustrate the Organisation Development team in action in the environment of the 'West Midlands Manufacturer'. Three cases were chosen to illustrate the 'Open Systems Approach to Planned Change' and these were based on the approach of 'Socio-Technical Analysis'.The main thrust of this technique is to activate the change process from the bottom up in an organisation through a deeper understanding of the many variables at the workface which require an informed and integrated approach for their management.

The theoretical framework of the authors is logically and interestingly presented. Each case in the book begins with a Phase of Diagnosis followed by a Phase called 'Strategy for Planned Change'. After developing a high expectation for results and success in the reader the authors describe what actually happened,and here one gets a feeling of disappointment.Every one of the three cases fails to achieve implementation.Top management either withholds resources at the vital point of implementation or deliberately announces a revised policy wrecking the projects. An explanation for this perceived failure of OD needs to be found from the book and additionally as a result

of direct research at the site of the study and with the academic team members.This chapter relates with both aspects. Firstly,let us examine the explanation in the published book,(Warmington et al,1977).

The first OD case of the company programmes described was called 'The Finishing Shop'. The problem diagnosis highlighted many variables which would need adjustment to ameliorate the situation.The incentive bonus schemes operating had become very complex and had distorted the even flow of work through the shop.A change strategy had been outlined and the shop floor members invited to be involved in the development of the changes.The timing of the invitation to participate had seemed right and the involvement gave rise to some positive thinking which was adopted by the OD team.However, the Planned change solution required some capital expenditure, and when this approval was delayed line management imposed a 'short cut' which was unplanned and which caused many problems with the production scheduling manager.He opposed the change because of his lack of previous involvement in the project. The change proposals were finally put forward for the shop men in the expectation of starting pay negotiations for implementation,then management clumsily put a freeze on recruitment of labour.This caused a long drawn out bargaining exercise and the overall improvements were then minor and much below the expectations of the OD group.This case indicates the pitfalls an organisation can encounter in not getting sufficient support in depth from middle management groups in the early stages to generate the momentum to overcome an operational hiccup in a programme of Planned change.Yet how

difficult it is to anticipate such varied aspects of the work environment within which other managers might subsequently be affected.If one casts the net of involvement very widely in the early stages then the involvement group is likely to become too large anyway for creative work and those invited reluctant to give of their scarce time till the Project has more form and substance.Brian Twiss, 1983, hypothesised that successful change programmes tend to be identified with a 'Project Champion' and a key facet of his role is the generating of organisational support throughout the ranks of management and in the Process he will often use the informal network of contacts.

The second and biggest case described in the book was called the 'Lower Foundry'.This illustrated in the authors' own words their approach of socio-technical analysis , " The Lower Foundry was a rather complex system with a dominant and difficult technology,also working in difficult market situations, and in which it was difficult to achieve a good fit between technological requirements,market requirements,social requirements and the control systems within which the men had to work."

This was Part of a factory making a Product for a declining market.Profit margins were tight; there were great fluctuations in the rate of activity in the Plant and the change team Putting uP a change strategy Put uP a ProPosal for widening the Product range in order to extend the life and stability of the Plant.IndePendantly, toP management did a marketing appreciation of the Plant and decided to close

it. No representation was permitted from the OD change team after the close decision was taken.There was thus no visible impact of the OD team in convincing the company that their methodology was worthwhile but the project did give the team good experience in conducting an OD enquiry. Members of the OD team were particularly upset as word got round the Foundry that the closure decision was taken as a direct result of the work of the OD team and this gave them a reputation which inhibited them when operating on other sites .As an outside observer it is difficult to decide whether this outcome was simply bad luck and a response to an unanticipated change in the market situation and appreciation thereof or whether alternatively the investigation never had even a sporting chance without a little more enlightened political lobbying levened with the socio-technical analysis on the shop floor.However,it seems surprising that management should not attempt to coordinate what were in effect two separate investigations at the one site and permit normal communication between the two investigating groups.

The third case study analysed in the book is called the 'Pressroom'.In this case study a works manager has already authorised a project in the area of the Pressroom.It has been set up with his terms of reference , his control scheme, and his deadline. He welcomed the assistance of members of the OD team when they offered themselves.They clearly strengthened the project effort and some success was reported.In the reports of the project little acknowledgement was given for the socio-technical analysis

methods that had been applied; the reports mentioned only the orthodox engineering methods contributing to the Project's success. There was some cudos which rubbed off on to the OD team but existing behaviour patterns had already been reinforced and the OD team were to admit that there had been no outcome of organisational learning.The difficulty arising is one of how a consultancy group can get credit for change when the line department are responsible for implementation and are reluctant to forego recognition themselves; yet if no credit is claimed by the OD group its overall existence and funding is at risk.

(3) DIALOGUE WITH WARMINGTON AND OTHERS, RELATING WITH THE ACADEMIC CONSULTANT'S PERSPECTIVE OF AN ORGANISATION DEVELOPMENT PROGRAMME.

In this section of the research direct interviews were arranged with Dr.Alan Warmington and Professor Lupton of the Manchester Business School.These two eminent academics had played consultant roles in the Organisation Development Programmes at the West Midlands Manufacturer referred to above.Professor Lupton had initiated the Programme,but day to day direct involvement on the company team was the role of Dr.Warmington,who occupied the post of Senior Research Fellow at the Manchester Business School.

Professor Lupton then offered information on the initiation and development of the OD Programme.Originally the company had approached him with a request for consultancy advice for simplifying the tangle of incentive bonus schemes,which had some 30 years of history during a period of much technological development and growth.His initial brief was to advise on methods of improving Productivity at the plant in the wake of tidying up these complicated incentive bonus schemes.He offered the technique of socio-technical analysis together with an expert in the skills of social science (Warmington) to found a Joint team.He felt that a multi-discipline team was essential to unravel the very many and varied influences brought to bear in understanding shop floor and management behaviour and the many hidden barriers to adequate Productivity.From this

initial base the team developed a full OD role capable of tackling a wide range of difficult organisational and technical projects.There were many successes and failures in these assignments but enough credibility was generated to legitimise the activity and presence of an OD team in the company and for it to survive major company cuts in the recession of the mid 1970's.The academic partners remained members of this OD programme over a period of some 7 years.

Professor Lupton outlined his perception of the overall aims of the West Midlands Manufacturing company's organisation development programme as follows:-

(1) The induction of real and lasting change within the organisation giving organisational improvement and building on effective learning within the organisation.

(2) Induction on a company wide basis of genuine multi-disciplinary thinking both at the diagnostic phases of problem solving and in the implementation of business solutions.

(3) The introduction and ready acceptance of genuine participation in management through bottom up working.This would be to capture man's creative resources.

(4) Develop genuine organisational structures that favour decentralisation into profit centres for the job enrichment of middle management.

(5) To provide an alternative to the dominant existing culture within the organisation to stimulate innovation and overcome the overriding impression that management at the top knows best.

The centrepiece of the technique of socio technical analysis using a multi-disciPline Project team was then illustrated in a working study undertaken by Lupton and Warmington.They had been given a brief to offer a critical examination of the company's Plans to set up in the Australian Subsidiary a new Plant which incorporated the latest technology of the industry. The multi - disciPlined team looked at this Plan through the following seven PersPectives:-

(1) Job Enrichment. Was the layout and the Plant and Process conducive for rewarding teamwork from the operatives?

(2) Technical ExPertise. Did the Plant and layout incorPorate the best of modern exPerience and exPertise required to achieve technical innovation in the Product?

(3) Payment Schemes. Did the Plans incorPorate realistic ProPosals for Payment schemes?

(4) Management Structure. Was the organisation structure designed with the technological Process in mind?

(5) Culture. Was the overall mode of operation compatible with the accepted Australian culture for management and workers?

(6) Flexibility. Was the layout and organisation structure compatible with the market pressures for a changing product mix?

(7) Innovation. Was the technical and management structure such as to encourage innovation both technically and managerially?

Indeed this study initially stalled through the late involvement of the multi-discipline team. After they had analysed the above plans they reported to management their significant reservations concerning this plant,but to their annoyance top management merely pigeon-holed the report saying that contracts for the plant construction had already been signed and key management appointments for the venture had been announced.However,Professor Lupton recounted that some two years later UK management expressed their concern that the plant in Australia had fared badly in achievement of operational targets and requested another look at the pigeon-holed reports. A task force was subsequently dispatched to Australia and were to find that the multi-discipline team had been correct in their predictions and the recommendations in the original report were subsequently adopted.

It was clear from this interview sequence so far that there was some irritation experienced between Lupton and the

company. Next discussed was the mode of operation of this multi - disciPline team and its authority and reportin9 relationshiP with senior mana9ement. He related that the reportin9 relationshiP was to a Board Member,the Personnel Director,a member of the owninG family, who had a brief to listen sympathetically to all reports comin9 from the OD 9rouP, but to delay imPlementation till aPProval had been obtained from the Board.At a crucial Period in the Pro9ramme the compAny exPerienced a seven week strike, the first maJor strike in the compAny's history, and an event which shook to the core mana9ement's confidence in their Predominantly Paternalistic style.At the end of the strike compAny members of the OD team were hastily returned to the dePartments from which they had been loaned to helP line mana9ement recover from the immediate effects of the strike.Meanwhile those Projects which had been authorised for imPlementation were handed over to a new 9rouP of senior mana9ers with a brief to imPlement the chan9es 9uickly. Unfortunately the newly aPPointed 9rouP knew nothin9 about the socio - technical aPProach adoPted by the OD 9rouP with the helP of the academics and were thorou9hly resentful at havin9 to imPlement ProPosals for which they had little symPathy. After this continuity set back the academics then reestablished an OD team but mana9ed to ne9otiate terms of reference whereby they would have both dia9nostic and imPlementation resPonsibility for Projects subject to the aPProval of the Personnel Director actin9 in a line mana9ement caPacity. Group members, however,had no individually a9reed Job descriPtions, and the 9rouP had no desi9nated mana9er. LuPton had insisted on this freedom to

establish the norms of multi - disciPline teamwork the very essence of which was to encoura9e members to break out of the straitJackets often associated with teams of sPecialists.Furthermore, the leadershiP role was in LuPton's view one of flexibility.Different members may be exPected to lead at different sta9es in a Project accordin9 to the exPertise they could offer to mana9e the issues of difficulty at that sta9e.This Position follows the concePts develoPed by Burns & Stalker,1961, in their model of or9anismic or9anisational structures for facilitatin9 the mana9ement chan9e Process.This Position of LuPton relatin9 with Job descriPtions and leadershiP for the OD team was at variance with existin9 culture and Practice for all other 9rouPs in the comPany.The OD team as described by LuPton orally and in writin9 by the book ,(Warmin9ton et al ,1977,) had many setbacks and it may be a reasonable interPretation of the evidence that ToP Mana9ement had not fully accePted this new or9anisational device imPorted by the Personnel Director, and it would not be beyond them to delay or sabota9e attemPts at chan9e which were Perceived as a threat to existin9 culture.

Discussions with LuPton then turned to another early OD Project,referred to above from the book relatin9 with the case described as 'The Lower Foundry'. For this case the OD team had been 9iven a wide remit to investi9ate the causes and circumstances which contributed to a Position of declinin9 Profit.They had no remit to chan9e anythin9.At a very early sta9e in the Project the factory mana9er offered to Join the team as a full member and ensure that they had

access to all relevant data and People and he fully supported Lupton's mode of operation outlined above regarding leadership and role positions.The OD team thought this a fabulously generous offer, so in effect the whole factory could be the target of their OD methods, and for a time this large unit would be Perceived as an OD laboratory.Later it seemed to Lupton that the factory manager had an ulterior motive in his enthusiasm.He had felt very oPPressed by the straitJacket of his line management Position and saw no way of rescuing the situation within such terms of reference.Membership of the OD team,however,was the means by which he could Perceive himself wriggling out of the straitJacket!

It may be recalled that this unit was eventually closed down by top management supposedly ignoring the reports from the OD team.The decision was a complex one.Owing to technological change it was necessary to replace quickly much of the Product range...but there was a shortage of marketing talent to specify viable replacement Products.Meanwhile top management redefined its strategic markets and Products and the role of the 'Lower Foundry' with a revised Product range did not fit within these newly declared Priorities.Meanwhile the 'cooPerative' factory manager could share the Problems of the 'Lower Foundry' with the OD team and escape individual line resPonsibility for the closure and the impact which such decision would have on his career.Lupton was clearly bitter at the way the OD team was 'used' on this Project.An interPretation of the communication Problem highlighted is that the terms of

reference and Power relationshiP of the OD team was not ade9uate.A Personnel Director may not have enou9h clout in discussions of corPorate strate9y. It may well have been a different story if the OD team had rePorted to a 'CorPorate Plannin9 Team' and had assimilated within it ProPer rePresentation from the marketin9 function.In that revised su99ested rePortin9 relationshiP it would have been much more likely that there would have been one inte9rated investi9ation into the 'Lower Foundry' not two, with the inherent difficulty of inter team communication and the susPicion of an outside observer that toP mana9ement viewed the OD aPParatus as a Potential fifth column.

Discussion then turned on to the nature of the workin9 role of academic members of the OD team.Warmin9ton related with his exPeriences. He saw himself,Primarily, as a 'Process' consultant.He would offer a behavioural science framework to helP team members interPret their own behaviour within the team and the comPlex behavioural relationshiPs between those who were the tar9et of the investi9ations. ComPany members, in contrast, in his oPinion tended to see their role in terms of task and concrete result, Primarily for the short term, as this rePresented the culture they knew.Warmin9ton himself remembered a9onisin9 over his own role in a situation where the comPany members wished to take short term action which in his Professional oPinion would Prejudice the lon9 term and lastin9 effects which he exPected OD to achieve.He was,however, able to Play a team 'coach' role when it came to interPretin9 results and then writin9 them uP for the benefit of mana9ement.

He was ,however, critical of top management in not being more empathetic to such reports couched in the terms and concepts of the social sciences.When a factory manager on loan to the OD team found to his surprise that many foreman attitudes were significantly different from company policy, making senior management look very out of touch, and he could easily refer to many such manifestations of the 'informal' organisation apparent in the writings of the social science literature.Warmington also alluded to worry and concern of company members over how their performance was being assessed at times when the OD team specifically did not have the authority to do more than investigate. This situation was so different to the performance guidelines in the established line management structure of the company.

(4) DIALOGUE WITH COMPANY ORGANISATION DEVELOPMENT TEAM FOUNDER MEMBER, RELATING WITH THE COMPANY PERSPECTIVE OF THE ORGANISATION DEVELOPMENT PROGRAMME.

In this part of the research direct discussions were held with Mr. P.Wieldon, who had been a founder company member of the Organisation Development team and at the time of the interview he had some 7 years of continuous experience within the group.He would reveal this 7 year history outlining the main developments in its mode of operation from its inception to its comparative maturity.He

would offer the company view of the aspirations of the OD team.

The initial formation of the OD team was on the initiative of the Personnel Director,who had developed links with the Manchester Business School.He wanted to improve Productivity within a manufacturing environment which had become the victim of ever more complex bonus payment schemes.The MBS offered expertise in clarification and management of Payment schemes but acknowledged openly that a multi-discipline team approach was essential for an understanding of the complex interrelationships to be found within social and technical systems.A new approach,and new thinking was advocated, and the company authorised the forming of this team.Founder members were as follows:-

One works manager.

One specialist from Work Study.

One accountant.

One engineer.

One man from Production Planning & control.

Two members from the Personnel Department.

Two academic members from the Manchester Business School.

The team's initial objective was to develop a method of working together as a multi-discipline team, to launch a major investigation but with no authority to change anything.The academic members were to introduce the concepts of systems thinking and the technique of socio-technical

analysis.The team took some three months to develoP a multi-disciPlinary mode of communication and the comPany members were amazed at the wealth of informal Practices which came to li9ht as a result of observation and surveys.The initial tar9ets of the study were at shoP floor level.The suPPosition of the academic members was that once a true Picture emer9ed of shoP floor Practices it would be a simPle matter to induce chan9e by invitin9 the aPProPriate involvement at shoP floor level and exertin9 subtle Pressures to remove the obstacles to Productivity imProvement.This early oPtimism was misPlaced.For imPlementation of any scheme mana9ement re9uired to read and understand the team's findin9s, and the Personnel dePartment needed to succeed in Pay ne9otiations.Levels of middle mana9ement resented their own lack of involvement and withheld the necessary suPPort to achieve benefit throu9h the Pay bar9ainin9. An unexPected 7 week strike was a blessin9 in dis9uise as it brou9ht into 9uestion existin9 mana9ement style and brou9ht with it an exPectation of chan9e.The OD team was in abeyance for some six months then reformed havin9 terms of reference which enabled it to do both dia9nostic and Planned chan9e Phases in a Project.APProval had,however,to be sou9ht before the imPlementation could Proceed.This enabled a much wider scoPe of oPerations. The tar9et 9rouP was no lon9er only the shoP floor tar9et with the emPhasis on bottom-uP chan9e;in contrast the tar9ets for chan9e were all Perceived 'stakeholders' in the situations re9uirin9 Productivity imProvements.The team now had freedom to en9a9e with all those affected.This wider remit then enabled the team to

work on other organisational problems,no longer only those with a predominant payment issue - hence the legitimised title 'Organisation Development' group.

The reformed team had an appointed leader with a normal job description,a formal line reporting relationship with the Personnel Director,who held responsibility for implementation decisions, a significant extension of the obligation to offer no more than sympathetic listening.The team then divided into groups of three and became involved on 5 sites and with an emphasis on getting middle management involvement in any projects undertaken.They had now established their multi-disciplinary orientation, their mode of communication,and had a record of completed organisational projects to give them credibility.

Discussion then turned to how the decentralised OD team initiated its assignments on such five sites.Wieldon explained two approaches.Firstly,a team would become aware that a line manager had initiated a development project and welcomed assistance from the OD team when they offered their services. Many such projects were expedited in this way and much goodwill was generated.However, line management would often attribute project success to orthodox methods and the expected acknowledgement of socio-technical analysis was not given.The underlying intention of achieving organisational learning was not perceived.

The second method of initiating a site project was for the OD team to follow their perception of organisational concern after making contact with site executives and then

Propose an OD Project to the site manager.Before the Project could Proceed beyond a Preliminary stage it was necessary to get the site manager's backing.Although the methodology of the team and terms of reference would be then completed by the OD team there was often much difficulty in obtaining the necessary commitment of the site manager and small setbacks could leave the Project very vulnerable.

Discussions then turned to the type of assignments which had recently been completed. If for instance a new division had been created or a major new facility established it was most unlikely that the OD team would be directly involved at the formative Planning stage. It was disappointing the relatively Parochial,departmental issues which seemed to be the commonest ones undertaken.Major decisions of strategy,or organisation structure, tended not to be referred to the OD team.Only Problems with a major expected Personnel management aspect tended to be directed to the OD team.Top management seemed to be very wary of adopting the Lupton aspiration of changing organisational culture.Indeed the ruling family adopted a subtle method of getting membership of key Policy making groups to ensure that they were well informed of what was going on in the organisation and could Perpetuate their influence.Company members of the OD team wished to go out of their way to emphasise that in their reformed mode of operation they now had a recognised leader,formal job descriptions, and in many respects conformed to the Predominant company culture.They wished to go out of their way to shed a group identity as a fifth column and in its Place become a supportive group using

multi-disciPline techni9ues to offer hi9her mana9ement more oPtions.

The methodolo9y of dePloyin9 teams of three on a site was to be further reformed.A recession affectin9 the industry of the comPany caused mana9ement to imPose a 9eneral 10% cut for all staff 9rouPs and in the case of the OD team a 15% cut was imPosed.The team was then sPlit into two seParate sections . One section was classified as 'a9ents' who would work on a site as individuals,but be caPable of formin9 a team as the Project develoPed. The second section consistin9 of three PeoPle assumed a staff role, whose aim it was to formalise concePts of or9anisational imProvement and to attemPt to Put into Practice throu9hout the comPany any 9ood PrinciPles that they had established throu9h the lar9e number of site investi9ations.This latter section had assumed a strate9ic trainin9 role.

Wieldon reflected on a recent 9uestionnaire to line man9ers seekin9 to determine the Perceived value of the OD team's work.This 9uestionnaire had rePorted favourably - 50% of the work accomPlished by OD a9ents was re9arded as essential (i.e. would have otherwise been assi9ned to another staff 9rouP had they not been available), 40% was 'useful' thou9h not essential ,but Perceived as cost effective, only 10% was not aPPreciated.

The interview then turned on the 9uestion of relationshiPs which the OD team had cultivated with other

specialist staff groups and how he would see their role in the organisation developing further.He felt that they had much in common with colleagues in other sections of the management services function,which also reported to the Personnel Director. In particular he thought links should be developed further with those in the Data Processing Department, who were engaged in systems development.

(5) ANALYSIS OF DIFFERENCES IN PERSPECTIVE BETWEEN COMPANY AND ACADEMIC MEMBERS OF THE OD TEAM.

As a result of the action research of this chapter it was clear that aims and roles of company members of the OD team were significantly different from those of the academic members.The role of the academics seem to be primarily a process role. They reflected back to the others what was happening in their relationships among themselves and with line departments, and assisted in the writing up of project results within a social science framework.Their aims were primarily for the long term improvement of the sites in the company and had an underlying value system which encouraged further delegation of authority from management and relied significantly on goodwill from the workers at the workface.The academic members were open in their disenchantment at the paternalistic management style of the company and stated that this should be changed in the interests of organisational health.They were averse to working within written job descriptions as they felt this would inhibit creative thought.

Company members, in contrast, accepted the predominant task oriented company culture and felt the need for short term benefit and recognition of results. They were positively relieved when the OD team was reformed after the 7 week strike to find themselves working in a more structured environment with an appointed leader and clear terms of reference and a clear reporting relationship with management. They rejected the idea that permanent change could only be induced from very high shop floor participation. They stated the perceived need for getting in depth support from all interested 'stakeholders' of the organisation, paying particular attention to needs and constraints imposed by middle management. They were wary of the 'plug being pulled' on OD projects at the implementation stage and advocated an adequate dialogue with top management throughout a site investigation to reduce the chances of subsequent abandonment. They were supportive of the view that an OD team should have authority both for the investigation and implementation stages of a project, though they admitted that the composition of the team may change at any phase of a project to enable more expertise to be added or to redeploy expertise no longer required. They were irritated that top management did not involve an OD presence early enough in major strategic work, though they got satisfaction from the many completed studies done at the site or departmental level of the organisation.

(6) SOME RESEARCH FINDINGS ABOUT ORGANISATION DEVELOPMENT.

It may be recalled at the beginning of this chapter a hypothesis was stated as follows:-

'Organisation Development skillfully applied at the workface of an organisation will lead to productivity improvements and organisational learning.'

The research method was to look at two sources of data. Firstly,the published literature of this study, Warmington et al, 1977,and secondly interviews with the key participants,both company members of the West Midland Manufacturing Company, and the two principal academics from the Manchester Business School.

Based on the evidence presented in the interviews and in the book, both productivity improvement and organisational learning generally required more than fully developed shop floor participation from the bottom of the organisation and fluent process consultation.Successful change in company projects in reality seemed to be most elusive. The change agents needed to have more than 'process' skills.They needed in addition a network of contacts in middle management and a sense of timing to introduce involvement of those with power.They were particularly vulnerable at the point where there was required an implementation decision for a project from a diagnostic phase of findings. A separate implementation group without significant membership from the diagnostic group tended to fail badly.Without a commitment

to and full understanding of the techniques of the multi-discipline project team an implementation group would not possess the know-how to complete the implementation phase.

If, however, the project group was kept together as a team for the implementation phase (revised mode of operation),then the group would still be vulnerable if they were dependant on getting further allocation of company resources and had not gone out of their way to keep top management informed of their thinking. Top management were not amused to be taken for granted and were capable of pulling the plug on a project at late stages of development.Top management were also capable of authorising two different studies at once into the same site and then putting barriers up to frustrate normal communication between the two groups.

Top management seemed to have a lot to learn about how to get mileage out of their OD group.We find with regret an analysis authorised into setting up a foreign plant with advanced technology and to the disgust of the OD team the report is pigeon-holed because management says it is too late to implement the ideas...contracts have been signed...management appointed. The irony was that some 2 years later the findings were vindicated and the report implemented. Calling in the OD group is sometimes a mere company ritual with no real expectation that they can contribute.Higher management consists of personalities with opposing policies and objectives and an OD team might

Provide just the ammunition one Protagonist may need. He may need to Play for time...he may need to divert attention away from his own areas of vulnerability and the OD team with suitable terms of reference may do just that.For the OD team to succeed it requires leadership and good Judgement to distinguish between when their authorised assignment is Part of some 'hidden agenda' and when it is a genuine one for organisational improvement with a reasonable chance of eventual success.They need a reporting relationship to the very summit of the corporation to Prevent this waste of time and resources.If the OD team report to a functional executive,such as the Personnel Director,then they may be Perceived as a fifth column working Primarily for the advancement of the Personnel Director, but at the expense of the Marketing Director etc.

The academic members of the OD team did not like formal terms of reference for the team , but without these being available and open the team would naturally attract suspicion from members of line management. The evidence suggests that the OD team should have reported to a Corporate Planning Staff Group with open terms of reference shared between that staff group and the management of the sites where their work was accomplished.This would have Prevented much of the friction and frustration in evidence in this study and could Possibly have involved this necessary and creative systems thinking from the multi-discipline team at the very inception of major strategic Projects instead of later when things had gone wrong.

The findings of this study are congruent with other findings of writers on OD. In Chapter 2 Burke's Model of OD Processes and stages, 1984, offered many useful insights into getting success into OD Projects, and evidence suggests that these insights were not anticipated by Warmington . In Chapter 3 successful change was not only the result of the Process consultation,but also 'finding the name of the game' and articulating support of Powerful managers and ensuring high Priority for the OD Project. Brian Twiss,1983, required a 'Project champion' for success in Projects of innovation,and McLean & Simms,1982, required for successful consultation both skillful Process skills and expert skills Perceived relevant for treatment of Perceived areas of concern.They also were most cynical about models of 'Planned Change' unless they were underPinned by consultants who were PrePared to Play an active role in organisational Politics.

CHAPTER 5

FIELD STUDY WEST OF SCOTLAND MANUFACTURER.

INDEX OF CHAPTER 5.

SECTION 1

THE HYPOTHESIS FOR THIS STUDY.

The overall aim of this research is to develoP and demonstrate an effective methodolo9y for mana9ement consultancy so that Problems in manufacturin9 or9anisations may be dia9nosed and treated.In ChaPter 4 we found Warmin9ton,1977, attemPts to do this throu9h the dePloyment of Or9anisation DeveloPment Pro9rammes and use of socio-technical analysis.The thrust of this aPProach was hi9hli9hted in the followin9 9uotation:-

" The Lower Foundry was a rather comPlex system with a dominant and difficult technolo9y,also workin9 in difficult market situations, and in which it was difficult to achieve a 9ood fit between technolo9ical re9uirements,market re9uirements,social re9uirements and the control systems within which the men had to work.".

Whereas Warmin9ton was lookin9 for contin9ency factors relatin9 with 'fit' the research of this chaPter is attemPtin9 to seek out the contin9ency factors of 'fit' within 3 distinct systems of mana9ement : LRCP,MbO,MIS,and the dePloyment of an OD Resource.

The hyPothesis would thus be stated:-

(a) "Mana9ers in a manufacturin9 or9anisation will be

able to relate with the notion that their company has a manifestation of a 'Corporate Planning System', an 'Objective Setting System', a 'Management Information System', and a culture within which 'Change is Managed'.They will be able to identify their own role within each such system.They will be able to describe in their own words their own Perception of the workings of these systems in their own environment.They will be able to compare such Perceptions of their company systems with normative models of each system which are described from the literature (Chapters 2 and 3 of this research) within an interviewing dialogue.

(b) "An interviewer so using a questionnaire relating with LRCP,Objective Setting,MIS, OD through a representative cross section of middle and top managers throughout the organisation will unearth Points of 'mismatch' between actual Practice and normative model to illuminate areas of real organisational concern."

SECTION 2

THE CHOICE AND SELECTION OF ORGANISATION.

Some thought needed to be devoted to the criteria of choice for a research study and the selection of a research sample.As the research method relied much on interviewing a

cross section of mana9ement it did not seem Possible within the resource constraints of the research to look for more than one comPany for this dia9nostic sta9e of the research.The criteria for selectin9 a sin9le comPany was based on the followin9:-

(1) One needed a contact throu9h whom one could ne9otiate an involvement of some 18 months research in the or9anisation.

(2) One needed to look for a 'hi9h tech' 9rowin9 manufacturin9 comPany with sufficient Product comPlexity and Product variety to Provide a challen9in9 research environment.

(3) One needed to find a comPany that would feel comfortable in cooPeratin9 with a comPlex research Pro9ramme.

(4) One needed to be able to 9et ready access to the or9anisation's mana9ement within travellin9 distance from one's Place of work.

(5) One needed to find an industry not directly associated with the comPutin9 industry to ensure that the research was not in a very similar environment to that of the Honeywell studies described in chaPters 2 and 3 of this research.

SECTION 3

THE BACKGROUND OF THE ORGANISATION KNOWN AS THE'WEST OF SCOTLAND MANUFACTURER' AS REVEALED THROUGH TWO INTRODUCTORY INTERVIEWS.

Contact was made with the company through the Personnel Manager.The researcher had an academic colleague who had previously worked in his department who had provided this introduction.During a preliminary interview with the Personnel Manager of this company he offered much background data from which it was concluded that the company met the search criteria for research. It took a second interview with them, (with the Data Processing Manager), before the go-ahead was given by the General Manager to the research programme.This background information was thus provided by these two senior managers.The research was later to reveal much reinterpretation of the policies and background information so offered by them during later interviews in the company.

The Company had had a presence in Scotland for some ten years through a UK Subsidiary Company.The Parent company was headquartered in the USA.The owner/founder's influence was still much felt.He was an eminent scientist with no less than 500 patents registered in his name and from this strong technological base he had developed an international

company.The research laboratories were sited adjacent to Head Office and much of the predominant market position of the company was attributed to the excellence of the product quality and protection through patent.Some important patents were,however nearing the end of their life and the anticipation was that the market would soon become much more competitive.

The UK operation consisted of a manufacturing plant with two divisions (these were where the research of the study took place) and a sales and warehousing operation set up near London.One division had a 'process'manufacturing technology and had been going since the foundation of the plant.The second division was an 'assembly' operation,in which there were three levels in the product structure and this second division had only been operating some 18 months.In the 'process' division material cost accounted for some 90% of the product cost,whereas in the 'assembly' division labour accounted for some 80% of the final cost.Each division served separate markets and organisationally could be regarded as a separate business.At the time of the study there were some 1,800 employees at the plant;some three years previously there had been only 500.

The company founder was a personal friend of Douglas McGregor,1960, and he openly supported programmes for job enrichment and job design based partly on the findings of the behavioural scientists and he had implemented in USA a well developed employee participation scheme. The UK plant had a version of this adapted to UK conditions.There was no union recognition throughout the company.Control mechanisms for the UK operation had developed rapidly over the previous

ten years. Originally the Plans and budgets were centrally developed in USA and it was merely up to the UK to implement these Plans.At the time of the study the Practice of Planning was more interactive having as its focal Point a full 1 week workshop at the Plant in the Presence of USA management to review all Plans and budgets for the following year.In addition to this the Plant general manager held monthly sessions with his senior staff to review Progress against target for each key functional area and brainstorm reasons behind any difficulties or variances.

The Personnel Function had attempted to introduce employee Performance appraisal but they were already on the 6th generation appraisal scheme.Current thinking in the company was to have a very simple scheme with the minimum of form filling and no 'Promotion recommendation' within the scheme.Earlier versions of the scheme were found to be too time consuming and much Prone to the activation of appeals against the Promotion recommendation or its absence.

The Data Processing Manager added to this background Picture of the company.A Data Processing Facility had been in being for Just over a year in the UK operation and he was the manager responsible for setting it up. Data Processing had Previously been done through an Edinburgh bureau on a timesharing link,but in his view the systems had evolved Piecemeal and he Perceived that there was a current need to integrate the efforts for system development.His objective would be to create an on-line system on a database for the main manufacturing applications during the next 18 months.(An MRP approach).

There was a growing expertise in the company for applying data processing systems. The Dutch Subsidiary had had its own data processing facility for some four years and the USA Parent even longer. In his perception the USA systems were too complicated for immediate use in UK but there were many possibilities of sharing know-how with the Dutch. The Data Processing manager was pleased at the calibre of his own staff though he acknowledged that they were unfamiliar with the technology of the company's manufacturing base. His staff perceived that design initiative rested with themselves rather than with the users as the users had not the experience of on-line systems to be able to participate in any other than a superficial way. (A dangerous view perhaps?)

It was the company's intention to develop systems to a sufficiently high standard of design to enable 'portability' with other company subsidiaries; thus the development costs would be spread and progress would be faster, provided the UK and Dutch groups could work well together. A feature of the company was, however, that managers were pressurised to accomplish ambitious tasks with less than adequate resources.

The data processing manager was positive about cooperating with the research programme in the company. An intention declared to him was to concentrate research interviews initially with line departments and then follow this up with interviews with staff departments.

With this general pattern in mind it should be expected that apart from generating data of interest to research alone there should also be data which on interpretation could influence data processing priorities and selection of applications.

Within two days of completing this second background interview the company granted full access for the research study.

The research programme seemed to have got off to a good start. Although the first two background interviews were developed informally without a structured questionnaire both interviewees were volunteering information about each of the three systems of management and there was some implied interest in OD.The hypothesis prediction (a) that managers would be able to perceive their company work and role in relation to these system models seemed to be valid. It was yet to be researched whether points of real company concern could be profiled by seeking mismatches between their perceptions of company practice and the good practice from the norms in the literature.

SECTION 4

CHOICE OF RESEARCH METHOD AND GENERAL JUSTIFICATION.

The working of company systems was the core interest of this research and systems by their very nature are complex.It seemed most necessary in collecting data from the company to establish an in depth repartee with a representative section of the company management.A questionnaire delivered in the mail and filled in without opportunity for interaction was unlikely to reveal a sufficient quality of data for analysis.The predominant research method chosen was a set of face to face interviews following a structure,which would be specified on a written questionnaire.The intention would be to schedule interviewees for approximately one and a half hours and follow within the constraints of that time the major topics of the written questionnaire. This time constraint was acceptable for the researcher also to the company.In many respects the two background interviews to gain access to the company had been successfully conducted as a pilot scheme on that idea. A disadvantage in this approach would be that data so obtained would not be easy to analyse quantitatively. But the advantage of this approach would be that the researcher could vary the depth of the interview on any one system according to the opportunity offered by the interviewee's knowledge and circumstances.

SAMPLE OF INTERVIEWEES.

Some thou9ht was 9iven in the research desi9n into the selection of a samPle of interviewees and the se9uence in which they would be interviewed.There seemed a need to 9et a 'dia9onal slice' across the or9anisation and a reasonable balance between the 'line' functions and the 'staff' functions. Already from the Preliminary two back9round interviews an outline comPany Picture had be9un to emer9e from the PersPective of two main staff dePartments.For the interview Pro9ramme usin9 the 9uestionnaire it was necessary to be9in the Pro9ramme with the line dePartments and then follow-uP with the staff dePartments.The final Phase would be determined by the need to secure corroboration relatin9 with Parts of the business Picture which were not consistent.

The se9uence of the interviews as they were done is 9iven. In the writin9 uP and interPretation of the data,out of sheer necessity only salient facts and issues are summarised for discussion. Included in the interview list was a 9rouP session (17) which was added finally to throw further li9ht on how the comPany was resPondin9 to their Policy of comPuterisin9 the Production Plannin9 and Control function (MRP).

INTERVIEWING PROGRAMME.

(1) Production Controller,Process Division.

(2) Assembly Manager, Process Division.

(3) Technical Clerk of Assembly Division.

(4) Manager responsible for Production Control and Purchasing (Both Divisions).

(5) Industrial Engineering Manager,Assembly Division.

(6) Finance Manager,Assembly Division.

(7) The Supervisor for the Warehouse and Traffic,(Both Divisions).

(8) General supervisor (Production), Assembly Division.

(9) Quality Assurance Manager,Process Division.

(10) Purchasing Manager, (Both Divisions).

(11) Production Manager,Assembly Division.

(12) Corporate Planner (Both Divisions).

(13) Quality Assurance Manager,Assembly Division.

(14) Senior Systems Development Manager,Department of Data Processing.

(15) Production Control Manager,Assembly Division.

(16) Manager, Warehouse and Shipping,(both Divisions).

(17) Group Meeting between Production control group from Assembly Division during Presentation of Proposals to computerise the Production Control function.

QUESTIONNAIRE DESIGN.

The questionnaire needed to be constructed to develop rapport between researcher and interviewee in relation to the three management systems of the research and the resource of Organisation Development.The questionnaire document needed as far as possible to be self explanatory and simple to administer.It would begin with a question relating with the role of the interviewee.It would be developed with general and open ended questions relating with the interviewee and his perceptions of his role within these management systems.The objective of gathering data by this method was to test whether it was an efficient way of putting company problems into a fine enough relief for diagnosis and eventually subsequent treatment.

QUESTIONNAIRE SPECIFICATION.

EXPLANATION OF QUESTIONNAIRE.

You are asked to cooPerate in this Pro9ramme of mana9ement research into the use of comPany systems as they are Perceived by you as a mana9er.The 9uestions you will be asked will be aimed to 9et a clearer understandin9 of your role and work within the comPany and how it relates with selected comPany systems.The interviewer will if necessary exPlain terms used if they are unfamiliar.

(1) ROLE AND TITLE.

Would you Please exPlain your title and 9eneral role within the or9anisation.

(2) OBJECTIVE SETTING SYSTEM.

Would you Please exPlain how the objectives of your Post are set, and how this relates with those of your dePartment and the UK or9anisation 9enerally? You may wish to hi9hli9ht how Priorities emer9e and how conflict is dealt with and how a cycle of feedback is established to hi9her mana9ement.

(3) CORPORATE PLANNING SYSTEM.

(a) Would you Please explain the Process by which the Plans and Policies of the manufacturing organisation of the UK are determined and reviewed and then related with the Plans and Policies which are implemented in your own department.

(b) How are your Plans and Policies related with the Plans and Policies of other departments?

(4) MANAGEMENT INFORMATION SYSTEMS.

(a) Would you Please explain the Processes by which management gets information for and about your department for Planning and control from both the manual systems and the computerised information systems.

(b) Would you Please explain how 'exceptions' are highlighted in reporting to management, Particularly exceptions relating with targets,Policies and standards.

(c) Would you Please explain how the business Policies and rules are set for the computerised systems.

(d) Would you Please explain how discrepancies are detected between resources needed and resources available for your departmental group.

(5) MANAGEMENT OF CHANGE/ORGANISATION DEVELOPMENT RESOURCE.

(a) Would you please explain in general terms how the company undertakes major changes in your environment at work ,such as introducing a new technology or product or introducing a new department.

(b) Would you explain your perception of the company's working policies on management development and other forms of team building.

SECTION 5

ACTION RESEARCH INTERVIEWS AT THE COMPANY.

NOTES IN INTERVIEW SEQUENCE.

Next follows a summary of the data as it was collected. Prior to being written up it was edited to bring out points of relevance.This summary of data has only a few comments of research interpretation.The data then forms the basis of further analysis (see Section (6) of this chapter) for a fuller interpretation. In the further analysis an attempt is made to diagnose key company problems using the management models as a normative guide to good practice.As the data included in the interviews following is of necessity still long the reader might decide to go forward and read first the analysis in section (6) of this chapter and then return to the detail of this section.

INTERWIEW (1).

Production Controller,Process Division.

The job of Production control was only part of his function.Production Control not considered sufficiently

important!Also he was leader of the Production Plastic Moulding Section.

Method of Production Control.

The following Planning inputs were used. (1) Consolidated forecast for 18 months ahead revised annually.(2) Demand forecast 6 months ahead with actual orders firmed up monthly.

Confusion.

Which source should he follow if inconsistency in figures?

Objectives.

Never have a stock out for customers.

Schedule Packing machines throughout the year at an even rate.

Aim to achieve "optimum inventory" 10 - 15 weeks finished stock taking account of seasonality factors, such figure would include stock at factory,in-transit,stock at subsidiary!

Constraints.

The following emerged in discussion.Lead times from suppliers, not greater than 4 months.Product cost Profile 10% labour,90 % material.Product inventory Perishable.

Points of concern.

The researcher was concerned about the following.

(1) Stocking Policy ill defined.
(2) Inventory responsibility split over three distinct areas,giving real control Problem.
(3) General lack of importance attached to Production Control as a function.
(4) Very dependant on HQ to offer accurate forecast, and he has no Part in developing the figures.
(5) Confusion in reconciling conflict for this manager.

INTERVIEW (2).

Assembly Manager, Process Division.

He was responsible for 102 People working a 3 shift system - 10 assembly machines,10 Packing machines, 22

different Product lines.Luckily some sPare caPacity but Production mana9er interruPts 3 times within the hour over next month's Production schedule!

Constraints.

Material suPPly,9uality of industrial en9ineerin9 service,influence of 9uality assurance team.

Objective settin9.

Commitment to aPPraisal twice/year.But no job descriPtion of his own.SuPPorts Mana9ement DeveloPment and took Part in development weekend.Concerned at hi9her Productivity fi9ures of Dutch Subsidiary,which he accounts for on 9rounds of better teamwork Practice and less job demarcation on the shoP floor.Unsuccessful in 9ettin9 Dutch methods accePted in Scotland.

RePortin9.

Once/month Presentations to General Mana9er relatin9 with achievement of monthly tar9ets and analysis of variances with other mana9ers.Would like comPuter assist....but to helP him react faster, not as an assist to Plannin9.Not imPressed with existin9 outPut from comPuter. System not desi9ned with Production mana9er and his needs in

mind!

Points of concern.

MbO preached but not practised!Manager seemed to thrive on reacting to his environment.

Role of MIS treated with much suspicion. Idea of managing by exception approved of but implementation not really appreciated.

Management development supported but no evidence of much follow through.

INTERWIEW (3).

Technical Clerk of Assembly Division.

He worked in the Production control section.(Assembly Division had a fully established Production Control function, and Parts inventory of some 500 items.).The main Planning document was Published Fridays to cover assembly and shipping for the next 3 weeks,revised weekly according to changes in customer Priority and material supply. Objective was to relate as quickly as Possible to above...all other objectives relating with stock levels etc were lost in the melee!

Objective setting and MbO was associated in his mind with job evaluation.No more no less.Need to retain utmost flexibility in the existing manual system and 'fire-fighting' environment.

Points of concern.

Little awareness of overall Planning,Policy making, or control,save to meet the immediate short term schedule 'come hell or high water'.

INTERWIEW (4).

Manager responsible for Production Control and Purchasing (Both Divisions).

(1) Responsible in advisory role for overall policy.Currently reported directly to the General Manager.Till a year ago was responsible for actual operation of Production Control in assembly division.

(2) Offered some detail on the method and rationale of annual workshop for corporate Planning.

ANNUAL WORKSHOP.

For one week each year USA Management came to the Plant to establish and interpret the corporate Plan and factory objectives.The session would begin with a lookahead at the sales Programme for the coming 18 months, leading then to the functional managers bringing forward Proposed budgets for their areas of activity and 'headcounts' relating with the amount of labour and staff to be on the establishment.The activity of Planning ,analysing and replanning would then take Place leading to the acceptance of operating detail. The budgets of revenue and capital would both be scrutinised and any special Programmes/Projects would be Proposed for approval. The detailed figures approved by the end of the week then became the base for monitoring for the year following by monthly and year-to-date reports to USA. The cost standards were revised twice a year to reflect both changes in overhead arising from new methods of manufacture and changes in material costs etc. Monthly the General Manager held a meeting with his senior managers and they would explain with the use of overhead Projectors and flip charts figures relating with monthly achievement against Plan.

(3) He wanted an MIS for computerisation of Production Control Procedures - no real indication offered as to its structure or Policies.

(4) Forecasting Problems.Subsidiaries would not keep to their forecasts. The factory saw it legitimate to second guess the subsidiary Position to get realism for their scheduling needs using historical data!

(5) No Protocol for Subsidiary to accept stock when they reduced forecasts without notice.

(6) No developed inventory turn goals established.

(7) General Policy was for the factory to react to sales regardless and never be in stockout Position.

(8) Factory felt vulnerable to (a) material supply breakdowns, (b) Technical breakdowns.

(9) Difficulty of keeping right amount of stock for factory levelling Purposes,bulk deliveries to London warehouse for distribution in the South and enough to supply direct Scotland and North of England.

(10) No real Policy on amounts of raw material stock.

(11) General Policy to maximise UK supply of raw material where Possible within required leadtimes. Much use of USA and airfreight to ensure reliability of supply source!

(12) Plea for more effective appraisal schemes to operate within company as means of getting management development.

Point of researcher's concern.

There was clearly a business need for Policies to be articulated for Production Planning and control and the organisation had made Provision for this role in this manager's Position, a recently created one. It was strange, however, that there were so many gaPs in light of a declared Policy to adoPt comPuterised routines for Production control.

INTERWIEW (5).

Industrial Engineering Manager, Assembly Division.

Manager newly in Position, not yet a ParticiPant in the annual Planning workshoP.

Manages a suPPortive dePartment with 4 sections:

(a) Industrial engineering.

(b) OPerator training section.

(c) Performance rePorting section.

(d) Works study methods imProvement section.

Manager suPPorts PrinciPles of MbO. Stresses need for imProved systems throughout his division.

Much of dePartmental work oriented towards setting and monitoring of Performance standards of manufacture and imProvement of Performance through training.

INTERWIEW (6).

Finance Manager,Assembly Division.

Organisation of function.

The UK Controller operated from manufacturing site and reported to the General Manager. Reporting to him were divisional Finance managers and the Finance Manager,Marketing,who was situated in the Southern Marketing and Warehousing operation. Also corporate Planning member for the Scottish manufacturing operation.Each division had both Planning and management accountants administering budgeting and costing systems.

The manager stated that the company had adopted an objective setting approach,but the actual setting of objectives was done much by informal methods following on from the annual Planning workshop.

The manager stated that the 'appraisal' Phase of MbO was still weak.

Gaps revealed in 'Objective setting model':-

Return on Investment. No developed policies here to

focus attention on capital proposals. No approved Payback Periods as basis of guidance.

Inventory Turn. No developed Policies here .

Inventory stocking Policy.General Policy not to stock output from 'Process' division as finished stock as the Product would deteriorate.

Economic Batch Quantity lots for manufacturing and Purchasing. No developed Policies here.

MIS Exception Principles discussed.

The manager stated that budget variance and cost variance analysis were main techniques used.Concern that the breakdown of reports not at low enough level for departments and sections to respond to variances at their own level. A material variance system recently installed.
Little use had yet been made of the computer to record and compute new standards despite the complex three levels of Product structure in 'assembly' division.

There was no overtime budget developed and monitored. Overtime effect was treated as element of overhead!

Computerised systems regarded more by the Finance Manager as an aid to bookkeeping than key technique for

assistin9 in Plannin9 and control throu9h exc^e^ption re^portin9 from 9oals,Policies,standards.

Concern exPressed by Finance mana9er at lack of cost consciousness by line mana9ers.He averred that the annual Plannin9 workshoP helPed to develoP this awareness by 9ettin9 mana9ers to develoP and defend bud9et ProPosals.

INTERVIEW (7)

The SuPervisor for the Warehouse and Traffic,(Both Divisions).

Objective Settin9.

This mana9er sPent much time and effort in PreParin9 for the annual Plannin9 workshoP.Once he had fi9ures for the annual sales and shiPPin9 forecast he would use them to recalculate the vital lo9istic re9uirements for his function in dimensions of Plant, labour and e9uiPment and its Parameters of control takin9 account of declared assumPtions of Productivity.

This involved the calculation of oPtimum issue and feed 9uantities for each line in the 'assembly' division and oPtimum lot sizes for stora9e of raw material to increase

the efficiency of the activities of storing and issuing.He sought improvements in the operation of the warehouse - more effective use of warehouse space, standardisation of loads for dispatch of lorries.Much objective setting was effectively self generated from his perception of the important operating parameters of his function and a given volume of business. He did find much difficulty in offering any rigorous definition of such parameters and rules,which would be necessary in event of getting a computer assist.He seemed to have thought much more about such concepts as 'lot sizes' and 'economic batches' than his colleagues in Production control and Purchasing!

Stock.

The mix of stock in the warehouse at the time of the research interview was 20% finished stock ,80% raw material. The finance manager had stated that it was not company policy to hold finished stock for 'Process ' division Products.The warehouse supervisor on being referred to this observation stated that the sales Plan had not been working; the factory had been overproducing. This was a worry as the finished inventory was vulnerable and required to be stored at a controlled temperature to reduce deterioration.Yet the 'Process' division also had a Policy of levelling their Production to attain greater crew and Plant Productivity.An observation must be made that there had not be sufficient thought to the determination of a 'trade-off' Position in these areas of conflict.At what critical stage for instance

would they cease to build up finished inventory and reduce the crewing in the 'Process' division? The interpretation of the researcher was that stock would be permitted to be built up as long as there was enough warehouse space then the problem would burst as a crisis!

MIS.

A computerised system had been developed to assist with stock recording and was running in parallel with the manual system. There was some lack of confidence expressed in the accuracy of the stock figures and difficulty of reconciliation of them as the reporting was done not in real time but through a batch processing system. This manager was critical of early attempts to develop computerised systems without adequate consultation with users regarding their requirements.It may be recalled that the data processing manager had already stated to the researcher that his predecessor had developed systems in an ad hoc, piece-meal manner,and now the warehouse supervisor was making observations about this legacy. A recent and more useful development was to introduce to the computer a bill of material file. This file had enabled his staff to check availability in the store of all items in the parts list before making any issue to the production line.This was reducing the amount of work- in- process on the production line and congestion.

INTERVIEW (8)

General supervisor (Production), Assembly Division.

Objective setting.

This general supervisor recounted that there were seven layers in the hierarchy of direct production workers in the plant. He had three levels below him and three above him. Below him were three foremen, each of whom had group leaders and then finally the direct production workers. From his point of view objectives were really a given factor laid down by higher levels of management. As far as he was concerned the predominant objectives related with achieving production and quality targets. He had a general responsibility for morale of the workers and for maintaining targets of productivity. There was no formal incentive bonus scheme but workers were expected to achieve 'standard' after being in plant for 60 days; (this was the normal probation period and employment would not be confirmed if this level had not been attained). Productivity was measured on the basis of computing the ratio between standard hours as a result of what rolled off the line divided by actual hours worked. He could call in the relevant operator training section, particularly when a new product or process was introduced but at the same time he regarded it as important for the supervisor to be technically competent in the

Process and capable of coaching those who were not Producing to laid down standards.

Delays that gave the job a challenge related with technical breakdowns and Problems with quality in the material.An independant Quality Assurance group undertook random checks on 1 in 8 of the Production on the line and 100% check at final operation.Production workers were expected to do 100% check for quality at every Point on the line, and would never Pass or condone a fault if it were deemed to be a functional one,though the supervisor had some discretion to condone faults which were 'cosmetic'.Some skill was required in interPreting these rules and making sound judgements,likely to be supported by the Powerful QA section.These compromises over company standards were inevitable as much material was USA sourced and on a 4 week or longer lead time, and rejection of a batch on grounds of quality could shut the line down for weeks.Much of the job thus related with close cooPeration with the staff groups and developing enough goodwill among his own workers to get them quality conscious. Training and management development were the resPonsibility of the supervisor to do on the job and as the naturally expected activity of the general supervisor.

CorPorate Planning.

The general supervisor had no direct inPut to this Process as done in the annual workshoPs but he felt acutely the consequences if there developed a mismatch between

Production Plan and the sales Plan.He could either be acutely short of labour and under much expediting Pressure or alternatively with a surPlus of labour and some but limited oPPortunity to disPerse it to other lines. The real Problem arose if the aggregate Plan was defective as there was a comPany Policy not to Pay off labour. In this situation there would be a scramble to fill the gaP with other work. A recent Practice had been to accePt instead some subcontracting work.If the Planners anticiPated better when the gaPs would occur then the subcontracting work could be Planned and then much better Productivity could be exPected than when it was undertaken as a matter of crisis.

Use of MIS.

The General suPervisor saw the quickening and simPlifying of the Process of comPiling Production and quality Performance statistics as the ProPer remit for a comPuter assist.This activity he found very time consuming in the manual system. He had no desire for any more elaborate comPuterised MIS for Planning, controlling or coordinating with other groups.

INTERVIEW (9)

Quality Assurance Manager,Process Division.

Quality Assurance Function in the Company.

Company culture supported strongly the role and function of Quality Assurance.A QA team and presence was set up always before the founding of the Production unit so that the Production groups tended to look upon the QA people as the technical experts for the Product.QA people tended to be more experienced and better qualified than their counterparts in Production. In the Scottish Plant each division had a QA Manager, and he reported to an overall QA chief at the Plant responsible for both divisions. He in turn reported to a QA vice-President in the USA, and daily random samples were sent to USA HQ. As some of the main company Product lines were nearing the end of the Patent Protection Period much competition was anticipated putting still further Pressure on the function of QA.

Objective setting.

QA objectives and standards were laid down in USA, but the UK operation had a remit to implement these standards.UK management saw the Provision of an adequate QA budget and competent staffing of the QA teams as the main thrust of their input to the annual Planning workshop. QA leaders also felt the need to get the group away from letting Production targets be the predominant ones set without regard to attainment of the appropriate QA standards.Some friction recently had developed with Production over the issue of the

adequacy of rework done under pressure when sub-standard raw material had been used.The policy within the QA group when it came to recruitment was to recruit at the highest permissible level! The manager stated that he did not fear having around him people who were better qualified than himself! QA often provided managers for other areas and other divisions, so there was plenty of career opportunity from the QA base and in his view the QA teams benefited from the frequent infusion of new blood.

Performance Appraisal.

This QA manager was critical of appraisal and manager development for departmental manager level and above. The company policies here were simply not implemented! At lower levels a Job Evaluation scheme had been introduced and this had helped staff to clarify their roles.

INTERVIEW (10).

Purchasing Manager. (Both Divisions).

This manager reported to the Purchasing and Production Control Manager (see interview 4 above). He was responsible for the day to day operation of Purchasing and following the

Policies laid down from above.(It may be recalled that his own manager had much difficulty in articulating Purchasing Policy).The company had created a layer in its organisation separating Policy making from operation in this functional area and this had been a recent development coinciding with the rapid expansion of the 'assembly' division.

In discussing the work of the department the manager stated that the Purchasing function could be divided into two key separate activities. The first related with selecting suppliers, the second with the expediting of outstanding Purchase orders.For selection he always had norms of Price,Quality,delivery date and volume to guide the decision, but he would tend to favour a company subsidiary if one was available. If one was not available then UK suppliers would be favoured over others.In reality many UK suppliers were eliminated from serious consideration owing to a Poor record for quoting acceptable delivery dates. He referred to an example of a local Glasgow firm requiring 4 weeks to deliver Packaging material!

The activity of expediting Purchase orders was a real nightmare in the company.A measure of this could be Judged from the size of the telephone bill (not disclosed but clearly a big worry).That morning the expediting section had indulged in a teleconference with buyers in the USA to solve a critical shortage which had become a 'line-stopper'in the Plant.

Objective setting and Policies.

Purchasing did not attempt to establish a Purchasing budget for material, only a budget to fix the establishment of staff. No formal system of vendor rating existed. Informally many of the concepts of this were applied, but there had been no attempt to apply economic batch quantity formulae to Purchasing, though buyers were instructed to take account of Price-breaks when firming up order sizes.There was also a Policy that the minimum amount of material ordered would be for a quantity not less than four weeks of demand. There was no attempt to sign bulk contracts with any monthly call-off schedule to get within the Price breaks.The technique of Value Analysis was used in the USA but not adopted in UK.Cooperation with Production control left much to be desired.Delays were experienced between them analysing reorder situations and advising Purchasing of the need for a Purchase requisition.Some delay was attributed to the errors in the stock recording system. Buyers did not generally have a clear Picture of the longer term demand so to be able to bargain for contracts and taking advantage of the leverage of volume.

MIS.

The only computer assist Purchasing stated that they needed would be an assist to help in the activity of expediting Purchase orders.There seemed to be no visualisation of MIS as a Planing assist.This was despite an annual amount of some £12 million spent on materials.

INTERVIEW (11).

Production Manager,Assembly Division.

This manager operated two levels down from the general manager at the site.He had been with the UK operation since its foundation.He was a prominent member of the local branch of the Institution of Works Managers, and had been elected 'Fellow'.The very rapid growth of 'assembly' division had made the Production manager's job a most demanding one.The company style and culture, which emphasised much worker and manager participation,had been very difficult to apply among the many new managers who had been recruited to enable the expansion, but had brought their own management styles with them,which were at variance with established company style.The factory operated under major constraints to its flexibility - a long pipeline between getting raw materials and turning out finished goods in an environment with much change. Change was of two kinds - change to Product structure with many new lines being introduced, and change of volume requirements from marketing with little notice.These factors were manifested in a high figure of stock obsolescence,which was written off.Also much activity directed towards the expediting of suppliers.

Corporate Planning.

Corporate Planning methods had taken a step forward with the introduction of annual workshops.Previous to that the Planning had been done in USA and the factory had little say in any of the targets. However, even with the annual workshop set-up, the Planning horizon was only 18 months ahead and there was no formal method of revising as a management team the Plan between the annual workshops, and in the changing environment there was not a lot of confidence in the Planning outcomes so generated.The factory was simply regarded as the system to accept the shock from the environment and the market.

MIS.

The Production manager was enthusiastic about deploying the computer towards any efforts which would help the function of expediting stock,but significantly he did not see MIS as an instrument applying management Planning and Policies other than in terms of financial reporting of variances at a lower level to make managers more cost conscious.Indeed he did not see the relevance of a question posed relating with the rules and Policies he would like to see written into an MIS.

Appraisal and Management Development.

He aPProved of twice yearly aPPraisal sessions for the junior mana9ers,Primarily as a control and trainin9 device.Mana9ement develoPment was seen as a seParate exercise. For senior and toP mana9ement in his view job descriPtions and aPPraisals were redundant as PeoPle at that level worked very closely with one another and it was most imPortant that they develoPed 900d communication and trust between themselves. Close executive teamwork and 900d communication were features that he could identify with in his own comPany role and exPerience.

PostscriPt.

Some three months after this interview the researcher was in the Plant and noticed the Production mana9er's name on the office of Production controller 'Process' division (see interview 1) and after discreeŁ en9uiries it was revealed that he had indeed been reassi9ned.The Job he had 9one to was a level below his Previous Job and in another division but si9nificantly was only a Part of the Previous mana9er's Post.He had fallen from favour and been sava9ely demoted. This seemed to be ironic in view of his earlier statement about trust and teamwork at the toP and the inaPProPriateness of aPPraisal schemes for senior executives. Evidence su99ests that 'assembly' division had indeed 9rown very fast and had many mana9erial Pressures associated with such 9rowth, but unfortunately the Production mana9er had not 9rown aPace with the Job,nor had

he even been aware that his position was threatened.

INTERVIEW (12).

Corporate Planner (Both Divisions).

Organisation of role of corporate Planner.

The corporate Planner reported two levels below the general manager at the site.His immediate superior was the financial controller.He had had some 18 months in this post and indeed succeeded the financial controller as corporate Planner. The role had a five year history prior to his present involvement.The post had been created as a financially oriented staff post to assist in the preparation of and conduct of the annual corporate Planning workshop in UK.Starting from a fixed and given 18 month sales forecast it would be his task to help make budgets for Plant and labour and to work out overhead rates for different activity levels and to declare the underlying assumptions of such calculations.To help him in these calculations he used the assistance of Honeywell's timesharing system and would have liked to develop this work further producing fully fledged financial models.

Criticism of corporate Planning methodology.

The corporate planner was critical of the routines he was obliged to follow in the UK.He perceived corporate planning as having as a minimum at least two phases.In the first phase there should be a critical analysis of the company position leading to a creative statement on strategy.The second phase would be done to flesh out the operating detail,compute resource requirements and make decisions about resource allocation.In the UK they only attempted phase 2 of this operation and this was perceived by him as just crossing the t's and dotting the i's. He would have liked the remit of the annual workshop to be to look ahead five years,not just 18 months and to use further financial models to explore creatively many more options.

Within the UK there was another corporate planner operating.He was attached to the marketing organisation in England.There was no contact between the two UK corporate planners as they were each representing different profit centres.The only common link was that each fed information to the USA and coordination was done there at HQ.

Policies.

The corporate planner had some input in evaluating proposals for capital expenditure. The company used DCF and expected a very high rate of return.Some projects would not get approval without offering a payoff period of just 1 year!The company in contrast was not very concerned about

cash-flow.

INTERVIEW (13).

Quality Assurance Engineering Manager,Assembly Division.

Reporting Methods.

An interest in this interview was the crucial influence the QA function had in the Plant through the high frequency of its reporting methods and access to senior management.Daily the QA manager held a conference to report on Progress of all QA issues.Daily Production samPles were randomly selected and Posted to CorPorate QA in the USA.Weekly the grouP came together as a tactical grouP to aPPraise themselves of the Pattern of QA issues,(often related with suPPly of material not to standard or relating with rework from Production).This internal meeting system was suPPlemented with continual corresPondence concerning customer comPlaints.Monthly the QA Manager made a Presentation to the UK General Manager exPlaining variances from comPany standards.

Individual Management DeveloPment.

This manager exPlained that curently he was on a comPany

authorised manaGement develoPment ProGramme. He was the first manaGer for which an individually tailored ProGramme had been constructed.He thus saw himself as a Guinea PiG. The ProGramme had been constructed on the initiative of two line manaGers who called in the TrainiG Officer for consultation.The GrouP of four had then discussed develoPment needs and ProPosed a ProGramme.The structure of the ProGramme included external technical courses, inteGrated into six month Periods of manaGement assiGnments in different sections of the QA function.A ProGress review would take Place with the four every six months and on comPletion of the second manaGement assiGnment Period satisfactorily he would be sPonsored for a Part time master's course at the local university.

This manaGer acknowledGed that he was not yet ready for Promotion within the QA function without more exPerience and knowledGe of manaGement.He was enthusiastic about his develoPment ProGramme throuGh his active ParticiPation in its construction and aPProved of havinG a combination of doinG elements in a resPonsible Position inteGrated with external course inPuts.He was aPProvinG of its direct relationshiP to his accePted Perceived develoPment needs.

PostscriPt.

Some six months later an oPPortunity arose to review the ProGress of the above develoPment ProGramme with the TrainiG Officer and he offered a new slant to its desiGn

and intention.He reported that the Programme had been aborted after the first six months assignment.The manager had been originally passed over for Promotion but was regarded as competent technically.The management development Programme had been offered as a 'sop' to keep the manager with the company but with little expectation that he would in the foreseeable future become Promotable within the QA function.The Training Officer went on to say that he had great difficulty within the company of getting support for resources for management development.For technical training and apprentice training there was no Problem in justifying resources but for management development it was up to the individual to take an initiative with his own line management,and then the company would look sympathetically at cases made for Part time courses at universities and colleges.

INTERVIEW 14.

Senior Systems Development Manager,Department of Data Processing.

Organisation of Data Processing Department.

The Systems Development Manager reported to the Data Processing Manager,who in turn reported to the General Manager of the site.

This organisation had been going for two years and had been set up as a cost centre with costs spread as overhead.He had one other colleague on the same level as himself,styled 'Operations/Programming' Manager.Policy about the selection of computer applications and priorities for design and development were discussed through the mechanism of a 'Computer Steering Committee',chaired by the General Manager with a membership of senior functional managers and the heads of the two divisions.Lateral links had also been established with USA HQ Data Processing Department, the Data Processing Department of the Dutch Subsidiary,and the Data Processing group of the Marketing Organisation in England.

Authorised computer applications.

The following is a list of applications at the time of the interview:-

(1) Inventory Management.
(2) Requirement Planning.
(3) Lot control system (for storing raw material).
(4) Bill of material.
(5) Payroll.
(6) Labour Analysis.
(7) Personnel records.
(8) Financial Planning/modelling.
(9) Manpower Planning/analysis of labour establishment, calculation of cost centre rates.
(10) Sales/shipments/Production Planning.

(11) Material variance reporting.

Justification of applications.

The Data Processing Manager espoused a policy of developing company systems in preference to a piecemeal approach to systems development. In reality each member of the Computer Steering Committee made their bids for functionally oriented systems and aimed at 'getting their share' of development time and effort often with very little feel of cost effectiveness. An economic evaluation did not form part of the feasibility studies undertaken.

User participation in computer projects.

This was very mixed. Generally the user relied heavily on the judgement of the experienced systems people to work out the rules and policies to be written in to the systems. The users themselves in middle management and supervisory positions had great difficulty in visualising what to ask for. They were not used to thinking in terms of finely articulated corporate policies such as 'turn on inventory', 'economic batch quantity', unless this had been a natural point of interest in the manual reporting system. User managers seemed to be trapped within the blinkers of their functional role and unaware of the policy implications of what they were doing. Systems design proceeded very much on

the basis of informal contact between the systems analysts and user management.When user management had changed then there had been occasions when the successor management had not adopted systems accepted by their Predecessors.There had also been some misjudgements in design manifested in a system being abandoned at the time of implementation on grounds that the reports offered by the system did not reflect sufficiently the actual operating requirements as Perceived by users.Yet the users themselves had supposedly gone along with the design proposals when they were developed.This showed some lack of commitment on their behalf to validate the proposals for systems development at an early enough stage. Much difficulty also arose in setting up systems which were used by more than one functional area.For instance, in design of Bills of Material for a computerised database the engineers wished to show the Product structure as revealed in engineering drawings,the Production control people on the basis of the scheduling of the Product as a continuous line of sub-assemblies and assemblies, the accounting people on the basis of their need to develop costing reports on work-in-Process.For one Product there could thus be three different solutions as to the number of levels of its Product structure for representation in the computer file! The systems analyst had to Play the referee between the competing interests and it was no use referring the matter to the 'Computer Steering Committee' as managers at that level simply could not engage in what they conceived as a technical Problem and nothing whatever to do with Policy.

Participation in the Annual Workshop.

Like other groups represented at the workshop Data Processing prepared budget figures and staffing figures for approval.Justification was looked for in support of members of the 'Computer Steering Committee' on the basis of currently approved applications.It was very difficult to gain approval for more staff for systems and programming. The workshop group looked upon Data Processing as a staff support function rather than as a strategic element in the company's corporate Plan. It may be recalled from earlier interviews that managers wanted an assist to expediting, not an aid to Planning,though this position was gradually changing with the start of a project on requirements Planning.The Data Processing Manager did a lot of listening at the annual Planning workshop to understand better what were points of corporate concern so that he could more creatively seek out opportunities for developing company Data Processing systems which would make an impact on them.

Training and development within DP department.

The Data Processing Department was still a new group and as such a pattern for management development and training had not yet emerged.The department had not adopted a performance appraisal system. Members felt they were Professionals and the expectation was that development would be much influenced by drives for self development.Senior members had a wealth of experience in data Processing - the

DP Manager 14 years, the Senior Systems Development Manager and his colleague the Manager of Programming/Operations each had 6 years. The one gap in expertise they did acknowledge was in the business knowledge in certain application areas - scheduling and planning of manufacturing systems.

INTERVIEW 15.

Production Control Manager,Assembly Division.

Organisation of Post.

The Production Control Manager,Assembly Division, was newly appointed from the USA Plant at the time of the interview having been in post just 2 weeks.He inherited a department employing some 20 staff.He reported to the Manufacturing Manager of Assembly Division,who in turn reported to the General Manager.

Objectives.

His brief was to implement good Production control concepts and apply the Policy as laid down by the Production Control/Purchasing Manager for the whole site.He perceived his position as that of 'trouble-shooter' and that Production control in this division was a real Point of

company concern.

Problems

The current system was a manual one,but the 'Process' division had already got a computer assist for requirements Planning and he looked to computerised systems as the way forward in 'Assembly' division.It may be recalled that there would be much more complexity in requirements Planning in'Assembly' division as the Product had effectively three levels in Product structure whereas in 'Process' division there were only two - raw material and finished Product.

There was in his opinion a severe lack of knowledge about in the Plant about Material Requirement Planning routines and the theory underlying this application.This stricture struck both at his own line management staff and the technical People in Data Processing to whom he looked to develop a joint Project team.He had already suggested a joint team and had appointed his most senior subordinate to represent Production control on it.He did not take at all kindly to the idea that that the systems analysts of the Data Processing Department should lead in design decisions about Production control. Rather he expected them to follow well articulated Policies and rules articulated by the Production control group. He was happy to bring some years of computerised MRP experience from the USA Plant and would likely wish to implement their Proven methods.

He was appalled at the amount of obsolete stock he found being written off each year - completely disproportionate to

the volume of business of the Plant.

He was unhaPPy at the 9uality and definition of the sales forecast and the random chan9es which were made without notice, and that this was done so much that the factory had adoPted a Proclivity of second 9uessin9 any forecast 9iven!

He was unhaPPy at the emPhasis 9iven to the Practice of exPeditin9 of material and the Panic Practice of airfrei9htin9 40% of the imPorted comPonents.

Ideas.

A main idea ori9inatin9 in the USA was a schedulin9 techni9ue called 'block schedulin9'. Under this aPProach the main volume Production lines would be oPeratin9 continuously and other lines with less volume would be set uP for sufficient time for the labour to achieve a rhythym and hi9h Productivity. In essence this was economic batch 9uantity theory bein9 aPPlied to the assembly environment.This aPProach should have much imPact on Productivity at the Scottish Plant which was distin9uished by a wide Product ran9e and relatively small volume.It would, however, Put Pressure on warehouse sPace to house effectively more finished inventory (on avera9e 1/2 any batch size) and Put similar Pressures on the suPPly of raw materials.

Discussion then turned to the issue of usin9 a 'master Schedule' to drive such comPuterised system of MRP. This mana9er exPressed suPPort of havin9 a master schedule but

then insisted that it be prepared manually in the interests of flexibility.

Joint meeting planned with Data Processing group.

In two week's time he had arranged for Data Processing to offer their ideas to his Production Control group.The researcher requested to be able to attend this joint session to observe at first hand the teamwork in developing a major component of a 'Management Information System' and its associated management policies.This request was granted. (See later interview 17).

INTERVIEW 16.

Manager, Warehouse and Shipping,(both Divisions).

An interview was sought with this manager to throw further light on the policies relating with inventory at the Plant.

This manager reported directly to the General Manager at the site.He was the superior of the Supervisor of Warehouse and Traffic, (subject of interview 7).

Actual inventory on day of interview.

Finished 9oods - £3.7 million.

Factory work-in-Process £1.2 million.

Raw material stock £5.1 million.

Inventory in-transit to subsidiary £1.1 million.

Total : £ 11.1 million.

Inventory Policies.

He stated that it was comPany Policy to maintain a minimum of 3 weeks world demand of finished 9oods for 'Assembly' division and no Planned finished stock for 'Process' division. The 'Process' division Policy assumed that stock was maintained by the marketin9 subsidiaries and the Product deteriorated unless kePt at controlled temPerature levels. Measures for inventory control PurPoses were simPle and related with three:-

Minimum stock.

Maximum stock.

OPtimum stock.

Minimum stock was exPlained above.In 'Process' division this aPPlied at three weeks' usa9e for comPonent stock only.Maximum stock was that exPected immediately after a 'toP-uP' rePlenishment had been received,and this order

quantity represented four weeks' usage unless Purchasing decided on an order quantity to fit a Price break situation.Purchasing always had the last say. Optimum stock was half way between minimum and maximum stock.

Usage figures were reset every three months to reflect the latest Picture.Marketing could change forecasts without notice and the factory was obliged to react, even though any major change meant that the factory would be left with an imbalance in supporting component inventory and may be mix of labour skills and Plant.In extreme cases when forecasts were reduced without notice the factory would be left with excess inventory.Marketing would not take responsibility for accepting inventory generated by any over stated forecast.However, the factory had to operate to a forecast rather than a firm order book as the lead times for components were far longer than the expectations of marketing for factory response. In 'Process' division where bills of material were already established on a computer file the usage rates for finished goods were matched in the computer with the bills of material to compute the gross requirements and summarise these to establish component usage. In 'assembly' division the computer files were not yet set up so component usage was based on historical data on usage only.

The manager explained that there were no economic batch quantity formula used anywhere in the system.They found the top-up system, described above, was simpler to operate.

There was no Policy or measurements which related with the number of times that the inventory turned/annum.There were no measurements of delivery Performance to customers.It was Policy to meet deliveries on the basis of orders and never have a stock out, but statistics here were not develoPed relatin9 with delays.

Obsolete stock.

When the comPany introduced Product chan9es this could leave a serious Problem of obsolete stock.There were Precedents where as much as a £ 1 million had been written off as a result of desi9n chan9e with inade9uate warnin9 from Research and DeveloPment and Marketin9.

Parts exPeditin9.

The day of this interview was a Friday. Currently there were 38 material shorta9es which were threatenin9 to stoP Production lines on the followin9 Monday.This was within a PoPulation of 500 comPonent items of stock.

Role of Data Processin9.

This mana9er saw an increasin9 role for Data Processin9 and systems develoPment in the Plant Particularly relatin9 with stock control and Production schedulin9. Early

experiences with data processing had not been happy and systems had been designed and abandoned, but lessons had been learnt by both data processing and line management and there were systems now operating successfully as a result of effective informal cooperation .There was still much difficulty in visualising what computer systems could do and developing sufficient dialogue over the policy rules to feed into the computer system.There was still a lot of problems with getting accuracy into stock figures and in knowing how to highlight exception conditions rather than create systems with information 'overload'!

INTERVIEW 17, GROUP MEETING.

Group Meeting between Production control group from assembly division during Presentation of Proposals to computerise the Production Control function.

Those Present.

The Production Control Manager of assembly division and his main staff of 16 members were Present and the Senior Designer from the Data Processing Department were Present.The objective of the meeting was for the Production Control group to review a Proposal from Data Processing for the introduction of Material Requirements Planning routines on the computer for their division.

Researcher's objective.

The researcher wished to witness the development of joint teamwork between the two groups and see the extent to which the groups would be able to identify the corporate policy issues inherent in the introduction of computerisation in this area.

The Presentation.

A proposal document of 18 pages had been circulated to those present at the meeting and the Senior Systems Designer then explained the document and supplemented the presentation with audio visual aids. The meeting was run informally and the designer was prepared to discuss points of concern when they emerged.

The Proposal.

The basic proposal was one of replication. The process division already had a computerised production control system which had been running for some 5 months and the intention of Data Processing was to extend this given system to operate in the environment of assembly division with as little alteration as possible.

The basic features in the proposal were as follows:-

(1) The system would run monthly.

(2) At the month end the latest 3 months Production schedule for all finished Products would be entered manually.

(3) All outstanding Purchase orders with due dates would be entered manually.

(4) A computer maintained inventory file with stock Planning Parameters would then be matched with the latest consolidated work-in-Process master file for component

Parts and the matching would establish the figure for 'on-hand' stock plus the 'on-order' figure.

(5) The first phase of the system would be to match the manually generated finished product schedule with a computerised bill of material file to achieve a 'Parts explosion',which on summarisation would enable gross requirements to be computed for all components.Gross requirements would represent total demand on each item. This summarisation would be necessary as many products were made with common components.

(6) The second phase of the system would be to match the gross requirements with the consolidated inventory file (with figures for 'on-hand' and 'on-order') to establish net requirements.The net requirements were what had to be purchased or expedited.

Problems admitted by Presenter.

The Presenter explained that in Process division a 'Parts explosion' once only was required as the Product structure consisted only of raw material being converted to finished Product.In contrast in assembly division there was another level in the Product structure representing sub-assemblies. Thus he wished to point out that Production controllers would need manually to check the Printed listings of net requirements before actioning them,Particularly those showing a shortage

condition,(recognised by a negative figure for 'on-hand' stock), which may have been caused by the Parts having been allocated to a sub-assembly currently in work-in-Process.An alternative solution to this Problem was to to repeat the 'exploding','grossing','netting' Process a further time to take account of the level of sub-assembly.This had been rejected by Data Processing on the grounds of the much greater complexity in the computer routines to Program for this extension and the implications it would have in stock recording of sub-assemblies, which were currently treated as work-in-Process, and had neither stock Planning Parameters nor separate inventory records.The scheduling of sub-assemblies was currently done informally on the initiative of the line foremen.

Discussion at the meeting.

Discussion then Proceeded on a number of issues.Firstly, there was much greater clarification required by Production control members of the definitions used in the Proposal and of the details of much of the Processing logic.Particular concern was expressed about the Problems of keeping the work-in-Process file up to date.Much concern was also expressed about the treatment of sub-assemblies and the validity of an inventory figure for components already issued to the sub-assembly line.Members Present were not happy at having to do manual checks on a net requirement listing from the computer before it could be used.Their view was that a computer system should make their job easier,not

more confused!The system was only proposed to be run once/month,yet parts ordering and expediting was a continuous process.Fears were expressed that the manual system would continue to be the predominant one in light of a business need to be much more responsive.The Production Control Manager,(see interview 16),then declared that the system he wanted was really a Parts Planning system,which would merely recalculate each month gross requirements. In his view there was not enough accuracy in the computerised figures about work-in-Process and 'on-hand' inventory for it to be practicable to attempt a computer tabulation giving net requirements.The Systems Designer was pleased at this intervention as it reinforced the position that the simple system operating in Process division for just two levels of inventory could be adopted without much adaptation to the three level inventory environment of Assembly division.

Before the meeting closed an implementation time scale was offered by Data Processing promising a full system supported by visual display units within 6 months.

Observations on teamwork at the meeting.

(1) Representation.

It was strange that there was no representation from Purchasing (after all they would use the proposed listing of net requirements), nor from the Production foremen who would

be much affected by the way sub-assemblies would be dealt with.

(2) System Justification.

It was strange that there was not a murmur of financial justification for continuing with this proposal despite the amount of man/months it was assumed it would take to develop and implement an MRP system. It may be recalled that the corporate Planner (interview 11) had stated that the company expected a payoff period of 1 year for proposals for expenditure of capital, yet for Data Processing Projects there seemed to be no guidelines on payoff period.

(3) Policy clarification.

Systems for Material Requirements Planning may be expected to reflect much corporate policy in balancing the needs of customers to receive deliveries on time, on the factory need to balance its loading for labour and plant over the year, and the need to maintain inventory levels which were in line with financial targets. These policy points were not apparent at the meeting above. The Data Processing Systems Designer concentrated on the system mechanics, the Production Control Manager never introduced an element in the discussion about policy or the objectives of the MRP system. Yet any starting point in systems design is generally a definition of system objectives. (Refer

Murdick, 'MIS for MbO', 1977,).

Points of concern raised by the Production control staff regarding the accuracy of computerised records and the method of operating with the computer tabulations giving net requirement listings were not fully dealt with.

Project Planning.

The Production Control Manager (see interview 16) had stated that he had appointed a senior member of his group to liaise with Data Processing for the development of MRP and set up a joint team.There was no evidence that this had happened.The company really needed a consultative machinery for developing this system to the point of a viable proposal and implementation plan yet they already had a target date just 6 months away and the designing and using groups seemed as yet to be poles apart.

SECTION (6)

INTERPRETATION OF FINDINGS RELATING WITH THIS COMPANY.

The research hypotheses for this chapter stated earlier:-

(a) "Managers in a manufacturing organisation will be able to relate with the notion that their company has a manifestation of a 'Corporate Planning System', an 'Objective Setting System', a 'Management Information System', and a culture within which 'Change is Managed'.They will be able to identify their own role within each such system.They will be able to describe in their own words their own perception of the workings of these systems in their own environment.They will be able to compare such perceptions of their company systems with normative models of each system which are described from the literature (Chapters 2 and 3 of this research) within an interviewing dialogue.

(b) "An interviewer so using the above approach through a representative cross section of middle and top managers throughout the organisation will unearth points of 'mismatch' between actual Practice and normative model to illuminate areas of real organisational concern.

ANALYSIS OF INTERVIEWING DATA.

In this analysis we will examine the collected data against each normative model in turn to seek out mismatches from good Practice.The order chosen will be:-

Long Range Corporate Planning.

Objective Setting.

Management Information Systems.

Organisation Development.

Long Range Corporate Planning.

In Chapter 2, figures 5 and 6 offered the foundations of corporate planning practice. Figure 5 represented Glueck's approach ,1976; figure 6 represented a more modern 'Dynamic Contingency Approach'.

Company data throwing light on company practice of corporate planning may be found from several interviews:-

Firstly, the initial background interview with the Personnel Manager.In this he described the practice of the company to hold annually a one week corporate planning workshop at the Plant in the Presence of the USA top management team.

Secondly, a fuller description was offered by the Manager for Production Control and Purchasing (interview 4).

Thirdly, a major criticism of the Process and method was offered by the Corporate Planner (interview 12).

Fourthly, an observation was made by many functional executives that the annual workshop was primarily concerned with setting annual budgets and not enough with strategic

9uestions.This was made by Purchasin9 (interview 4), Quality Assurance (interview 9), Data Processin9 (interview 14), Warehouse and ShiPPin9 (interview 16).

Fifthly, serious concern was exPressed when the CorPorate Plannin9 Process failed. The General SuPervisor Assembly division would have either critical shorta9e of labour or embarassin9 surPlus.(Interview 8).Si9nificant write-off of obsolete inventory could be done when marketin9 or en9ineerin9 chan9ed the sales forecast without due warnin9,(uP to £ 1 million,which concerned the newly aPPointed Production Control Man9er,interview 15).

Sixthly,the researcher himself could not but observe difficulty in 9ettin9 executives to define and articulate business Policies Particularly in the field of Plannin9 for a balance in the use of resources -inventory,labour,Plant. This related with confusion over resPonsibility for finished 9oods inventory,no realistic Policy for customer delivery, no use of economic batch 9uantity theory for manufacturin9, acceptin9 exPeditin9 of comPonent Parts to the extent that 40% of material suPPly was air-frei9hted in from USA under emer9ency Procedures.There was also a 9larin9 lack in consistency in Policy formulation for allocatin9 financial resources.For some Projects a Payoff Period of one year only was exPected, yet for data Processin9 Projects aPProval was done by a Purely Political Process within the or9anisation with no attemPt at a financial Justification with a Payoff Period.Financial Policy laid down by the Finance Mana9er stiPulated that there should be no finished 9oods held for

Products in Process division, (inventory too perishable), yet we find the Warehouse and Shipping Manager,Planning to maximise storage space to accommodate surplus Process division finished inventory.

There are clearly many 'gaps' now appearing between the actual corporate Planning Process undertaken and the norms outlined in this research.The executives themselves are not happy about the Processes and they are not united about how to put things right.

Now let us compare their Process of corporate Planning with that offered in the model of Figure 6,' A Dynamic Contingency Approach'.

(1) The model suggests a machinery of a Board of Directors supported by a Corporate Planning Team.

The company does have an executive group, but the corporate Planning team doing the support is very thin on the ground! We have a high Powered USA Presence once a year for a week at the annual Planning workshop, and for the rest of the year merely one financially oriented corporate Planner, whose Prime role is not strategic but merely operational i.e. Putting figures on budgets.

The model suggests a significant role for a forecasting team with remit to offer a Product forecast which is satisfactory for sales and marketing and which can be interpreted interactively with manufacturing for a check for

realism in the logistic profiles.(See Figure 13 for diagram of that process).This role is not apparently done in this company at the level of the UK Subsidiary. From the factory point of view Sales and Marketing are a separate 'closed' system and the factory must react to such influence,not interact with it.Managers at the factory are so incensed by this situation that they actually advocate that the factory second guess any forecast coming from Sales and Marketing (see interview 4).

The model suggests a forward Planning horizon of some 5 years, not just the 18 months done in the company.This criticism is also made by the company corporate Planner (interview 12).

The model suggests the use of value analysis to get clear Pictures of Profitability and activity both in dimensions of the customer base and the Product base.This analysis was suggested in the model to form the foundation of Profiling the winning and losing areas of a company with a view to reallocation of resources to the stronger areas and more clearly determine likely growth directions.In this company there was no obvious analysis such as this being done. Indeed an analysis such as that would require a firmer basis of costing than the company had. The company costing was weak at several Points. Firstly, the huge cost of expediting and air-freighting, and the significant Premium cost of overtime did not appear to be allocated.The customer order entry routines which might have been expected to be computerised to generate much statistical and Planning data

had not figured in the Plans for data Processing.

Objective Setting.

All interviewees could readily relate with their roles and effectiveness standards in their jobs. There was,however, much tunnel vision in evidence; very little realisation that objectives are multiple and that trade-offs are required to be considered through discussion of Policy to achieve an acceptable balance.Rather Jobs were considered within tight functional boundaries with short term Production targets having a Predominant influence.There was no-one who could convincingly relate their objective setting frameworks with any of those in the literature, (such as the 8 areas defined by Peter Drucker,1954). However, there was a widely held recognition that the annual Planning workshop laid out the basis of objectives, Particularly those expressed in terms of budgets and establishments of People.Nevertheless, there was a healthy recognition that the Planning environment changed much over the year and the guidelines laid down by the workshop became less and less relevant as the year went by.The reaction to this was then to react as fast as Possible to the immediate situation generated by the Production Plan and the need to respond to the demands of Sales and Marketing.A moderating influence was offered by Quality Assurance and the frequent reports and samples which were sent by them to HQ in USA. Feedbacks on achievement of objectives against Plan were done on regular monthly Presentations by functional executives to

the General Manager.

There were however, many deviations from the MbO model as developed in Chapter 2 and Figure 2. Detail job descriptions with clarification of responsibility and authority areas and boundaries of discretion were unknown at senior levels, yet at levels up to departmental manager a job evaluation scheme had been in operation, and many interviewees considered that job evaluation was indeed 'Managing by Objectives'. The observations above about the lack of coordinating policies in many key areas of corporate planning suggested a lack of thoroughness in the clarification of executive jobs.

A key element in the the MbO process is the phase of problem solving appraisal with a third party present.The Personnel Manager in the background interview had stated that the company were in their sixth generation attempt at getting an appraisal scheme implemented.Evidence from the interviewees was very patchy here and indeed at departmental manager level and above this policy was not being implemented at all! The Production Manager Assembly division (interview 11) disputed the relevance of the appraisal policy for senior managers, stating that they worked on the basis of close and frequent contact with colleagues and trust. Ironically it may be recalled that 3 months later he indeed fell unexpectedly from favour and was demoted two levels to a job which was then divided in two!This incident seemed to be much at variance with the philosophy of MbO which relates with managing within a framework of mutual

expectancy and the continuous development of the executive team ,rather than through arbitrary action.Another appointment decision which on reflection looked a strange one and at variance with MbO Principles was the creation of the Post 'Manager Production Control and Purchasing', (see interview 4), to oversee Purchasing Policy and separate this from its operation.We may recall that this manager had been promoted from the operational Purchasing Post but still had much difficulty in articulating the very Purchasing Policies he was appointed to make.Evidence suggested that he had been 'kicked-upstairs' out of the heat of the kitchen, a rather more Pleasant fate than his colleague, the Production Manager, who had been 'kicked downstairs'.A side effect of these appointments seemed to be to create an organisation structure with more layers than strictly required.We find,for example that there are no less than seven layers of organisation for a facility employing some 1800 people within a technology which was not over complex.MbO in the view of Drucker,1954, is an approach to help make strengths Productive and organisation structure should enable strengths to be Productive.

Another inference which may be made relating with the lack of effectiveness in implementing the appraisal Process is that there was inadequate identification of skill requirements and managerial know-how needs in anticipation of the growth and development of the business.An example of this was the quotation of the Production Control Manager (interview 15) that there was a severe lack of knowledge about computerised Material Requirements Planning in either

the Data Processing department or his own line department, despite it having been Policy to develop computerisation in this field since the set up of the computer facility.

Management Information Systems.

Mismatches in MIS application from norms of good Practice.

Concepts and Practice of MIS were not consistently developed within the company.Some functional managers associated MIS with Providing a statistical aid, (interviews 8 and 9).Others saw MIS primarily as an aid to information retrieval with a view to more effective expediting,(interviews 2,11 and 16).The Corporate Planner, (interview 12) saw MIS as a set of Probabalistic models to help with strategic decision making and wanted this to be Part of the annual Planning workshop.The Quality Assurance Manager (interview 9) and some others saw MIS as the regular company reporting cycle,based on manually Prepared reports and face to face discussion of Progress against target and analysis of variance in the Presence of the General Manager.Much emPhasis was given to budget variance, though there was some disquiet that the level of variance reported on was not low enough to PinPoint resPonsibility accurately.The Data Processing Manager wished to develop overall company systems to the level of an MIS and criticised his Predecessor for adopting a merely Piecemeal

aPProach to systems develoPment,(see back9round interview). He su99ested that the Data Processin9 9rouP should devote much time and effort to educatin9 the mana9ement team about what they should exPect from a Data Processin9 DePartment and systems.There was scant evidence that such education Pro9ramme had taken Place,or indeed had any imPact on the functional executives.The Mana9er for Production Control and Purchasin9, (see interview 4), thou9ht that a sales and marketin9 forecast comin9 from another Part of the comPany should be 'second-9uessed' for the convenience of the factory.Several mana9ers saw difficulties in definin9 information needs so that information systems reflected these.There was much imPlied criticism of the Data Processin9 GrouP for desi9nin9 systems with less than ade9uate user ParticiPation resultin9 in comPuter Printouts not bein9 used and systems bein9 redesi9ned.ChaPters 2 and 3 of this research, suPPlemented at a Practical detailed level in APPendices 2 & 3, offer 9uides to 9ood Practice for MIS desi9n summarised in the concePt of the 'En9ineerin9 APProach' but this comPany adoPts a Purely informal aPProach.

The comPany did, however, have a stated intention of develoPin9 a key comPonent of its MIS ,namely a Material Re9uirements Plannin9 system.They were exPeriencin9 many difficulties in imPlementin9 this intention, Particularly in Assembly division with its 3 levels of structure in the make-uP of the Product. An MRP aPProach was aPProPriate 9iven the lon9 suPPly cycle and raPidly chan9in9 short term demand situation, the wide Product ran9e and the need to

improve labour and plant efficiencies.Although the policy to go for an MRP system seemed to be right, it did look most unlikely that the company would get what it needed. Indeed it had very little idea about what it wanted.(Refer interviews 16 & 17).The starting point in design for a complicated MRP system i.e. one dealing with three levels or more of Product structure must be a definition and agreement of system objectives and done within the framework of representation of the key executives who have interests in the outcome of such system.For developing this MRP system we had no representative joint team to develop and validate MRP proposals.All we had was a brief for Data Processing to replicate a technical package designed for a radically different manufacturing environment.The informal approach adopted to MIS design has little chance of measuring up to the complex needs and demands of developing MRP.

Organisation Development.

Appraisal of this resource.

There was very little direct rapport with executives regarding the resource of Organisation Development.The assembly manager (interview 2) alluded to taking part in a residential week end seminar into Productivity in an attempt to understand why the Dutch Subsidiary had higher Productivity than the Scottish facility for the same Product line. In the seminar participants came to a conclusion

relating this manifestation to demarcation in job boundaries.However,no follow up action was attempted to reorganise or try for improvements on the lines suggested.

The Production Manager assembly (interview 11) also approved of team building executive activity and alluded to a company practice immediately after the annual Planning workshop of holding a seminar at Chesters in the Presence of members of the local Business School.

The Quality Assurance Engineering Manager, Assembly division (interview 13) described how he had become a guinea-pig on the company management development Programme, and that a Programme had been individually tailored to his needs by a group of 4 managers. Yet it may be recalled that the Programme was aborted after the first 6 months and the Training Manager admitted an ulterior motive in launching this Programme, and went on to state that the company had no coordinated management development Programme though they looked sympathetically in supporting initiatives of individual managers.

The company clearly experienced Problems in managing change. The Data Processing Manager (see background interview) foresaw the need for an education Programme to heighten awareness of the Potential for using computerised systems,but the evidence did not suggest that this had happened. When the company decided to Promote Joint teamwork between data Processing and Production Planning and control (see interviews 15 & 17) the intention alone was evident, the actuality of joint teamwork was missing.

SUMMARY OF INTERPRETATION OF FINDINGS.

For each of the major management system models of this research there were mismatches with the norms of good Practice.

Lack of a developed corporate Planning system left the factory dependant on its USA HQ but isolated as a 'closed system' 51 weeks in the year, left to react to demands and changes with very little warning. The company had very little idea of the Profile of its winning Products and customers related to its activity, nor the loss makers. Resource Provision for labour, inventory and Plant was very much Planned on the basis that the annual budget was valid despite market and Product changes happening continuously.

The lack of a solid corporate Planning base left much objective setting of individual executives much in a limbo situation, with Poor and inconsistent articulation of Policies and generally an ineffective Performance appraisal Process, Particularly for the more senior executives, despite a company Policy of appraisal for all.

The lack of Policy definitions, the absence of an interactive sales forecasting link, the low level of stock accuracy, the informal but 'Data Processing' oriented method of computer system design made the development of a sound Management Information System a really up hill task. The

company were right to plan for the design of a computerised Material Requirement Planning System to underpin an MIS but so many other preconditions had first to be met that the evidence suggests that it was very unrealistic to expect to complete this project in 6 months without facing the issues of the preconditions outlined above.

The company had some difficulty in managing change and undertaking executive team building exercises. There was little evidence that they had a basic knowledge of the theory and practice of Organisation Development, and several examples were highlighted implying that change efforts had been ineffective. The Training Officer stated openly that there was no coordinated management development programme.

The company was not getting the full benefits of its products nor the expected potential of its executives and workpeople. Some observers might think that was a quotation from Peter Drucker,1954, in a passage advocating MbO, but, however, it is a considered comment on the evidence about the West of Scotland Manufacturer.

The above analysis may look super critical and the reader might wonder how a company such as this survives and grows.Reasons for business success are varied.This company also had many strengths.The products were made to a very high standard of quality and the company enjoyed a dominant market position protected (but not for much longer) by the many patents registered by its founder. The West of Scotland Subsidiary was,however, at a crossroads in its own

development.It had coped well as a small unit since its founding, but rapid growth and a second division had created many stresses and strains and these very stresses and strains would likely threaten the future of the UK Subsidiary unless they were mitigated. The Problems diagnosed by this research study could indeed lead to treatment.Such treatment could Pave the way to a more systematic and Professional style and towards a company more responsive to its markets and environments and capable of greater Profit and value for its level of business activity. A likely blueprint for treatment may be found developed in Chapter 3 of this research relating with the introduction of system models within Residential Division of Honeywell in their USA operation.Figure 12 illustrated the sequence and components of the general approach to undertaking such a Programme of treatment.

SECTION 7.

DEVELOPMENT OF FINDINGS RELATING WITH THE STATED HYPOTHESES AND ITS IMPLICATIONS FOR A CONSULTANT'S METHODOLOGY.

Now a brief review of the research hypotheses stated at the beginning of this chapter.Each will be considered in turn.

Hypothesis (a).

"Managers in a manufacturing organisation will be able to relate with the notion that their company has a manifestation of a 'Corporate Planning System', an 'Objective Setting System', a 'Management Information System', and a culture within which 'Change is Managed'.They will be able to identify their own role within each such system.They will be able to describe in their own words their own perception of the workings of these systems in their own environment.They will be able to compare such perceptions of their company systems with normative models of each system which are described from the literature (Chapters 2 and 3 of this research) within an interviewing dialogue."

Discussion of hypothesis (a).

In this study the evidence suggests that the managers had little difficulty in relating with the practice of Long Range Corporate Planning and Objective setting though their perceptions of the detail of each process had some variation.They could, however, state what their company did in each Process.

Perceptions of the meaning of the expression 'Management Information System' were more diverse, and functional managers had a very limited view of what to expect from

computerised MIS, and had some difficulty even after coaxing in making sense of the research models.A Predominant view emerging was that computerisation would enable the company to react faster.The idea that MIS could help Plan the future and help in the coordination of marketing and manufacturing Plans was not widely appreciated.Yet the company had supported a Project on MRP! Many executives did not seem to know what they had let themselves in for!

The resource of Organisation Development and knowledge about its theory and Practice was scant.

Hypothesis (a) as stated above was only Partially validated.

Hypothesis (b).

"An interviewer so using a questionnaire relating with LRCP,Objective Setting,MIS, OD through a representative cross section of middle and top managers throughout the organisation will unearth Points of 'mismatch' between actual Practice and normative model to illuminate areas of real organisational concern."

Discussion of hypothesis (b).

The evidence for this Part of the research is discussed

above in Section 6 of this chapter, and many and serious points of concern were identified for this subsidiary company. This part of the hypothesis may be said to be valid.

IMPLICATIONS FOR A CONSULTANT'S METHODOLOGY.

Management consultancy requires the completion of consultancy assignments,in which a diagnostic Phase is but one Part of the overall consultancy.

The diagnostic Phase done at the West of Scotland Manufacturer using the methods of this research was effective at highlighting significant points of company concern. A criticism of the Process was that it took a very long time (18 months) for the gathering and a further year for analysis of the data, and this would have compromised an action or treatment Phase in the Company. However, it must be appreciated that the consultancy at the company was actually undertaken as a Phase of a Part time research Programme in which the time scale in which the researcher was operating was largely outwith his control. In a real consultancy encounter the consultant would either use his research methodology more selectively or he would deploy a research team and use the method as outlined in Section 4 of this chapter. In the interests of consultant/client rapport it would be most desirable to be able to complete the diagnostic Phase in a month!

Search for a more selective diagnostic methodology.

It may be worthwhile now to review briefly the pattern of 4 of the research situations discussed in this dissertation :- Honeywell Residential Division,USA, Honeywell Microswitch Division,UK, West Midlands Manufacturer,West of Scotland Manufacturer. In all of these situations the view of 'company concern' emerged only after analysing and interpreting the corporate Planning Process and methods. When that showed up weaknesses then such weaknesses were manifest in the other company systems, and the support for management expected from those systems fell short of expectations. This observation was particularly relevant in the study of this chapter,The West of Scotland Manufacturer. Being a Subsidiary Company separated from HQ and an interactive marketing influence the corporate Planning system at Subsidiary level fell apart!

The consultant is guided but also constrained by his terms of reference and these may point him specifically to points of perceived company concern at the point of entry and limit his access to company executives and company records.To get more quickly to the wider and more objective profile of problems of 'company concern' it may be suggested that instead of choosing a 'representative diagonal slice of functional executives',(the method of this chapter), as the basis for interview it would be more efficient in use of time to interview at an early stage those who could shed light on the company's corporate Planning Process.

Burke,1984, in discussing successful OD Projects makes the point that the consultant has to manage carefully the entry stage in his assignment to get access to executives in key power positions.With these refinements to the consultancy strategy outlined research plans were then undertaken to experiment within another organisation and in the final action research study of this dissertation the method would be exposed both to the diagnostic and treatment phases of consultancy. (See chapter 6).

SECTION 8 - CHAPTER SUMMARY

This chapter was an action research study aimed at experimenting with an emerging methodology of management consultancy. The study begins with the statement of hypotheses in Parts (a) and (b).These are confined to the development of a company diagnosis by profiling mismatches between 4 management models of good system practice and the systems as used and understood by company executives.A criteria was developed for choosing a research site for the experimentation and a choice was made of an organisation called "The West of Scotland Manufacturer". The research instrumentation for the study was developed and justified as a questionnaire to guide a series of face to face interviews. The sample executives for exposure to the instrumentation and the order of the interviews was proposed and justified. Entry to the research site was achieved after encounters with two senior company executives,which were written up afterwards to offer background data about the

company to the reader.The Primary research data was gathered through 16 interviews using a questionnaire for guidance and a 17th interview in a group situation. This data was then interPreted for the overall business Picture revealed and then discussed in the context of the hyPotheses of the study.The major hyPothesis that the methodology would reveal significant Points of comPany concern was found to be valid.The secondary hyPothesis that comPany executives would be able to relate with the management models of the research was found to be only Partially valid. The major difficulties were with comPany executives relating with the management models for 'Management Information Systems' and 'Organisation DeveloPment'.In light of these research findings the researcher offered a refinement of the research methodology.This refinement was directed to enable a shorter timescale for administering the methodology so that the diagnostic Phase could be comPleted within 1 month's full time work and oPen uP the oPPortunity for some treatment to be Possible within some two months of entry. The chaPter concludes with an outline Plan for furthering the exPerimentation in the methodology at a further research site to cover both diagnostic and action Phases of consultancy.

CHAPTER 6.

A CONSULTANCY ACTION RESEARCH STUDY WITH A COMPUTER MANUFACTURER AND THE COMPUTER MANUFACTURER'S CUSTOMER, MIDLAND COMPONENTS.

SECTION 1

Background to the consultancy opportunity.

It may be recalled that at the conclusion of Chapter 5 the researcher stated his intention of seeking out a further opportunity for demonstrating consultancy phases in an operating environment to embrace the phases of entry, data gathering and interpretation, diagnosis, and intervention, using a selective version of the methodology undertaken in Chapter 5.

This opportunity was presented in the summer of 1982 when the researcher negotiated a secondment to the Education and Training Centre of a Computer Manufacturer, (name withheld), for the duration of 8 weeks with a brief to assess the effectiveness of some selected Training Centre Courses and undertake selected consultancy assignments with the computer manufacturer's customers.

During the first week of the secondment the researcher participated jointly on a 1 week course put on for the benefit of the Computer Manufacturer's customer, an organisation which is known in this research sequence as 'Midland Components'.The subject of the course was the implementation of a computerised package for 'Material Requirements Planning' for the customer.

Present at the week's session was a small cross section of executives from Midland Components. They disclosed during the week a truly horrific sequence of frustration over the previous two years in attempts to implement the package without success.They had on their site a substantial computer system supplied by the Computer Manufacturer and were paying in addition £50,000 annual rental for the MRP package.

After empathising in these implementation problems the researcher got agreement to visit the site of Midland Components and adopt a consultancy role. The perceived area of company concern surrounded their implementation failures with the computerised MRP package.

The Computer Manufacturer likewise approved the consultancy link between the researcher and Midland Components.The brief of the Computer Manufacturer to the researcher related with their perceived concern over the effectiveness of the training programme provided at the company's Education and Training Unit.

The areas of concern of the two organisations above were investigated and found to be interrelated. An entangled customer/supplier problem emerged requiring diagnosis and subsequent treatment.For both Phases and for both organisations the normative management models developed in Chapters 2 and 3 of this research played a central role in facilitating the consultancy sequences.

The aim of the action research of this chapter was to develop further and demonstrate the validity of using management system models selectively as a strategy for achieving managerial effectiveness.

The chapter outcomes related with interventions done with both organisations.In a Postscript to the study the researcher was able to report that his key recommendation concerning the marketing of the MRP Packages by the Computer Manufacturer had indeed been accepted and implemented.

The structure of this chapter is developed below.

CHAPTER INDEX.

SECTION 2

Hypothesis statement for this consultancy sequence.

"When a management consultant undertakes an assignment the normative management models developed in Chapter 2 and 3 of this research may be used either individually or collectively to illuminate a diagnosis of points of company concern and provide a base from which that company concern may be shared within an acceptable theoretical framework by company executives.Following this sharing of the diagnosis an effective intervention may be planned to close the gaps between actual practice and one or more of the normative models."

SECTION 3

Gathering the consultancy data at Midland Components.

There were two phases to the data gathering operation within Midland Components.The first was done informally by observation and interview before any terms of reference had been developed and was done at the Training Centre of the Computer Manufacturer during a course intended for users of the manufacturer's computer package for Material

Requirements Planning .The second phase was done by interviews on site at Midland Components after terms of reference had been agreed for the researcher.

During the first phase of data gathering a corporate picture emerged revealed by the company members present.They included ,Dom , the Production Control Manager;Barry, Production Control/ Data Processing Coordinator; Ian , a Computer Programmer; Harry, a Section Leader in the Department of Finance; Gordon, a Production Control Manager for the separate and smaller Surrey operation of Midland Components.

The initial corporate picture was built up by the researcher using the model of Glueck,1976, illustrated by Figure 5, as a device for questioning and conceptualising observations.

Midland Components were a leading supplier to the motor trade for a specialised range of components for engines.They had a dominant market share for their product, and at the top of the quality segment of the market they enjoyed a monopoly.They attributed their success to their expertise in research and development and had the benefit of receiving this R & D from the parent company in the USA.Some three years previously (1979) the parent company invested in a new modernised UK plant near Birmingham, which had a capacity large enough to take account of expected growth in the UK motor trade, assuming maintenance of market share. Later that same year the Managing Director of Midland Components

si9ned a contract for a comPuterised MRP system as a device for achievin9 hi9h factory Productivity.At that time the comPany had already Purchased a medium sized comPuter confi9uration, had established a Data Processin9 DePartment, and had some accountin9 aPPlications already workin9. They had had two years' exPerience of Data Processin9.

Within a month of the leasin9 of the MRP Packa9e the comPany had some senior mana9ement chan9es. A new mana9in9 director was aPPointed, and in the next two years the comPany had three different data Processin9 mana9ers and two different Production control mana9ers.Meanwhile the recession in the motor trade had taken hold and the factory was oPeratin9 at only 70% of its Production caPacity.The market for the motor comPonents had become much more comPetitive,and mar9ins had been slashed.Worse still they had a serious bad debt situation arisin9 from some cancellation of orders,which had already been committed to work-in-Process.The comPany lawyers were tryin9 desPerately to recover these bad debts.A feature of the market in which the comPany oPerated was that it consisted of a few customers only,all of whom took a substantial Percenta9e of business and there was always much fear of losin9 a contract.

The late Mana9in9 Director had si9ned the lease for the Packa9e after the ComPuter Manufacturer's sales team had done a very convincin9 Presentation and demonstration. The sales Pitch had been that all factory schedulin9 and Productivity Problems would be 9uickly solved with use of

the Packa9e and it was a simPle matter of wirin9 it uP, feedin9 it with data, and Pressin9 the buttons! The rules and Policies within the Packa9e conformed to industry standards.The Packa9e was written in a user friendly style. It was not exPected that there would be any hassle in imPlementin9 it. The comPany mi9ht simPly have been buyin9 nothin9 more comPlicated than a lawnmower! (ResPects to Wilkie, 1982,).

The researcher now observes and analyses data usin9 the theoretical MRP models of ChaPter 2, and Fi9ure 8, to helP conceptualise the emer9in9 Picture of MRP at Midland ComPonents.

The reality was that the MRP Packa9e to date had been one bi9 headache to Midland ComPonents for the inherent mana9ement conflict it had unwittin9ly 9enerated!Some comPany executives found it very difficult to reconcile with the ori9inal sales Pitch for the Packa9e.With the benefit of hinds i9ht they realised that a team imPlementation effort was needed and some education for the functional executives to relate more clearly with the business PrinciPles of the Packa9e.The Packa9e was not as 'user friendly' as it had been made out to be - heaven for the technically oriented comPuter Pro9rammer but 9obblede9ook for the non technical executive. The Mana9in9 Director,aPPointed in 1980,had not aPPreciated the mana9ement imPlications of introducin9 the Packa9e for schedulin9 the factory, and had 9iven other Projects at the Plant a hi9her Priority.He had,for instance,Put a major effort into develoPin9 a bonus Payment

scheme for direct Production workers in the belief that Productivity was more sensitive to stimulatin9 individual efforts than some comPuterised schedulin9 system.(A different level of commitment and orientation from his Predecessor).He had also been exPosed to USA demands at Head Office for ti9ht oPeratin9 financial controls in li9ht of the climate of recession and the concern of the comPany over tyin9 uP money in work-in-Process inventory.The Financial Controller had taken this cue to use the database feature of the MRP system and dedicate it to work-in-Process rePortin9.The Data Processin9 Mana9er reported to the Financial Controller and accePted the sub-Project of startin9 the set-uP of the MRP database with this financial objective as a first Priority. The financial PeoPle had Persevered with the settin9 uP of one third of the database records needed to satisfy their Perceived financial re9uirements.They also had declared their intention to use this database to suPort the labour Payment calculations of the Production incentive bonus scheme,reducin9 the hi9h costs of its administration.

It may be recalled from the discussion of the theoretical framework of MRP that 'The En9ineerin9 Database' is a major and unavoidable feature of an MRP system as it Provides the basis of rePresentin9 Product structure and incorPorates the standards of manufacture and labour.The En9ineerin9 Database is at the very core of the Processin9 which facilitates the calculation of 'lo9istic Profiles',from which resources of Plant,labour,and raw material may be Planned.

Progress towards using the MRP system to schedule the factory had been most disappointing to date.Hence, company executives had requested the Computer Manufacturer to offer one week of training and to concentrate on the scheduling routines.

It was quickly apparent to the researcher that the design concepts of the Computer Manufacturer for their MRP package had been misunderstood and were at variance with the assumptions of Midland Component executives. The manifestations of this are discussed below.

Some controversial issues emerging.

Issue (1). Number of levels in the Engineering database.

The Course Presenter, Dave,kept emphasising that MRP was primarily a scheduling package with capability of cost reporting tacked on but built primarily on the assumption that the Engineering database faithfully represented the levels in the Product structure as a Production controller would be expected to control and schedule the Production line. Dave had indeed recently visited the Plant and made the observation that the Product was simple in structure - steel raw material being Processed through up to 90 operations before becoming a finished component.Through the eyes of a Production controller the levels were (1) Raw material,(2) Work-in-Process,(3) Finished stock.

Normal Practice for MRP would be to maintain stock movement records for raw material and finished stock.The work-in-Process inventory would be visible to the comPuter system by referrin9 to the finished stock identity and an oPeration number,which in the environment of Midland ComPonents could be anythin9 from 1 to 90.

In Midland ComPonents,however,the Financial Controller in his wisdom, and without realisin9 the imPlications, had decided that there should be no less than 10 control Points for work-in-Process rePortin9, and at each Point the Product would chan9e its identity in the En9ineerin9 database 9ivin9 no less than 9 levels of structure . No wonder the Production Controller found it difficult to schedule the factory when he had inherited this imPossible database!

Issue (2).Main inPut to MRP? An order book or a forecast?

The Production Control Mana9er of Midland ComPonents, Dom, assumed that a customer order book was far enou9h in the future to Provide the necessary demand Picture for factory schedulin9, but discussion soon revealed that the motor industry in times of recession were often 9ivin9 less than a month's worth of firm orders,yet the Process lead time in the factory Plus the raw material lead times for sPecial steels amounted to over four months.Further Probin9 revealed that such sPecial steels were uni9ue to Particular

finished components so bore equal commercial risk of being written off as the finished component. Within these constraints there was no way that the factory could guarantee delivery dates without taking risk with raw material stock and buying on the basis of forecast.The Finance People,however,had other ideas.Having burnt their fingers over cancelled orders and the ensuing legal action (see above) they were reluctant to approve an MRP system using forecasts.

Issue 3. System Running Frequency.

Next it was necessary to explore the issue of the frequency of running the MRP system. There were several options each of which had very different demands on the Data Processing resources and implied differences in management Planning and control and the roles of People Particularly within the functions of Production Planning and control and expediting. Basic options here would be to use MRP as a fully operational real time system so that at every Production shift a revised set of scheduling Priorities could be obtained from the Visual DisPlay Screens on the shop floor and very little paperwork.Alternatively it could be used more as a batch system using Printouts as guides but leaving more discretion to Production foremen between runs.Even within that option there were further alternatives i.e. daily runs, weekly runs,monthly runs. SurPrisingly,no clear view of Midland Components was forthcoming on this issue despite the two years they had been contemplating its

use!

The reality was that the MRP package to date had been one big headache to Midland Components for the inherent management conflict it had unwittingly generated. The package had offered them opportunities but had not and could not do the management thinking for them in selecting options, formalising the corporate planning policies to get the package to fit in their own environment.The senior executive of Midland Components present at the training week was Dom, the Production Control Manager.It became obvious as the week progressed that the Midlands group had not come for a 'refresher' on the MRP package but an exposure to the business fundamentals.Dom,was particularly bitter that the Computer Manufacturer had not provided this training week earlier to prepare his own organisation for planning an MRP implementation.He also stressed his need for a consultant on site to guide them on what now looked to be a complex project.

The researcher had found a consultancy opportunity. Dom accepted willingly the offer of help on site.

SECTION 4

Interpreting the initial data of Midland Components and planning later stages in the consultancy assignment.

There was some need to interPret and summarise the data collected so far, to decide on what further data to seek out on site at Midland ComPonents, to review selectively the Particular mana9ement system models which would assist in Pro9ressin9 this assi9nment at Midland.To Put the Picture into a broader PersPective it would be necessary to investi9ate further, in Parallel, the role of the Packa9e suPPlier,the ComPuter Manufacturer.It was their Policies surroundin9 marketin9,education, and Packa9e suPPort,which led to the demand for a consultancy Presence for assistance in 'unPacka9in9' the Packa9e and or9anisin9 imPlementation from their customer. The consultancy se9uence from this Point on would thus be directed at the or9anisations of both suPPlier (ComPuter Manufacturer) and client (Midland ComPonents). The Problems were Perceived as bein9 Partially interdePendant.

The immediate Problem Perceived at Midland ComPonents was that of PreParin9 for a comPetent and rePresentative executive team to oversee the imPlementation of MRP. This research offers an imPlementation se9uence in chaPter 3, used successfully in the Microswitch Division of Honeywell. It may be recalled that a rePlication of this Process was accomPlished in Just 18 months in another Honeywell Division,the UK based TemPerature Control GrouP. Midland ComPonents, in comParison,was a simPle environment,with only two levels of Product structure,but similarly a need to tune the Packa9e in symPathy with corPorate Policies. Unresolved conflict at Midland ComPonents between finance,marketin9, and Production control su9ested that the CorPorate Plannin9

Processes and the subsequent objective setting were informal and that much of the Policy formulation in anticipation of MRP had not been done. However, as the focus of attention currently was on the MRP system it would make sense to persevere with the theoretical framework for MRP and the subsequent implementation sequence defined in Chapter 3 and supplemented in Figure 12. This set of management models would thus be the starting Point, and it may be expected that a sharing of these models with executives would act as a catalyst to draw the company's attention to the relevant aspects of corporate Planning, objective setting , and Policy making, which needed to be thought about to get the MRP Programme started. A visit on site could be Planned to gain a greater appreciation of the actual manufacturing environment of Midland Components and to get a first hand view of the managers at the Plant. Some further exploration would be desirable around the areas of the currently Perceived conflict which was inhibiting Progress in implementing MRP.With these interactions in mind it should be expected that an intervention and treatment could be launched at Midland Components.

The researcher had to be careful in his Planning of time, for at the end of the 8 weeks of secondment with the Computer Manufacturer there would unlikely be an opportunity to continue the consultancy sequence.He had to be mindful of the overall structure of a consultancy assignment and the Phases it would involve.He would use the management models of OD developed in Chapters 2 and 3 as guide,and with hindsight Burke,1984,who relates with Phases and Planning

for successful OD interventions. Mindful of these guidelines he would restrict the intervention at Midland Components to the setting up of a viable MRP implementation process, and not attempt the more ambitious task (which might take years) of introducing all features of all management models to Midland Components.

SECTION 5

Gathering the data about the Computer Manufacturer.

Introduction.

The researcher had a brief to assess the effectiveness of the 1 week course staged at the company Training Centre for users of the MRP package. He had participated in the discussions at the course with both the lecturer, Dave, and the company members.He had arranged to go on site at Midland Components to assess the company view of the course after members had returned to their own environment.He had available from the Director of the Training Centre course evaluation forms completed at the conclusion of the course by participants.

Initially there were two points of concern.Firstly, the two year delay between beginning payment for the package and

under9oin9 a trainin9 session.Why was there such a lon9 delay? Secondly, why should the customer have been so insistent on the Provision of a consultancy Presence for clients to helP them to 'unPack' the Packa9e?

Data 9atherin9 to throw further li9ht on these issues could be done throu9h an interview Pro9ramme with the ComPuter Manufacturer. After consideration the followin9 list and se9uence were Planned:-

(1) Course Presenter,Dave.

(2) Assistant Director of the Education and Trainin9 Unit, Graham.

(3) Head of OPerational Research and Packa9e SuPPort, Arthur.

The researcher exPected to 9et a view of how the course was PrePared and Planned from Dave. He exPected to review with Graham the corPorate role and Policies of the Trainin9 Unit and its Part with Marketin9 in suPPortin9 the customer and timin9 that suPPort, for courses in 9eneral and for MRP sPecifically. He wished to review with Arthur the Policies under which the ComPany desi9ned Packa9es and documented them for business as well as technical users.The mana9ement models of corPorate Plannin9 and objective settin9 should Provide the framework in which any Perceived conflict could be identified and understood.

Interview 1

Course Presenter,Dave.

The course evaluation forms were on the whole complimentary of course Presentation. Course members appreciated that Dave had used live data from Midland Components in Practical Presentation sessions.He had made good use of a Previous visit to the Plant and made a good job of empathising with the company need for a sounder technical appreciation of what the Package did and how it operated in different circumstances.Members felt a much greater awareness of the capabilities of the Package, its comprehensiveness. The only major criticism was levelled by Dom,who had organised the funding for the course.This was that the Computer Manufacturer had not Provided a continuing consultancy Presence on site to aid with the implementation and with guidance about company decisions about which of the many options available in this comprehensive Package should be activated and then specialised to fit current Priorities and scheduling needs.

Dave had been Presenting this course for some two years. He did not have a background in manufacturing nor in Project control as a systems manager.His computing expertise had been as an operations manager in a large government computer facility.He had become familiar with the technical workings of the MRP Package.

During the review of the course evaluation forms with Dave there were discussions at some length about the type of policy problems that had surfaced with Midland Components. For instance,these related with decisions about the business options which dealt with trade-off situations to get a fit with corporate strategy.The number of levels in the Engineering database and the issue of using the order book or forecast were briefly referred to as points of concern.The theory behind this set of considerations is developed in this research in Chapter 3 under the heading 'Design Strategy (c)' (for MRP implementation in Microswitch Division).

Dave stated his own development need was to obtain a more empathetic commercial dialogue with package users.He wished to get some project management experience in implementing the MRP package on a customer site and confirmed that he intended to bring this need to the attention of the Director of the Education and Training Unit at a forthcoming appraisal interview .This was later confirmed by the researcher,who found that the Director had been sympathetic to the request and was looking out for a suitable opportunity to give him experience in such a role.

INTERVIEW 2

Assistant Director of the Education and Training Unit, Graham.

The researcher explained the circumstances of his concern, in which a customer had failed to get benefit from one of the company's packages for over two years since paying annual rental of £50,000, and only very recently had made overtures for training.Graham then explained the Computer Manufacturer's policy on training.

Up to the early 1970's training was offered free with every sale of computer hardware and the Training Centre was treated as an overhead.The company view was that this induced much waste. Customer requirements varied significantly and there was always much argument over the right amount of Provision necessary to sustain sales.A new director,appointed in 1971, introduced a policy whereby the Education and Training support was separately identified in the hardware contracts and Priced on the basis of agreed need.Education and Training became a Profit centre in its own right.Its only customer was Sales and Marketing. The Computer Manufacturer saw itself Primarily as a hardware manufacturer, and the software,Packages and support services were Perceived as PeriPheral elements in the overall Product catalogue.This change reflected an industry development

adopted by other manufacturers and known in the Press as the Policy of 'unbundling'.This was generally well supported in the industry and gave a real role for independant software houses,who could often Provide software and service cheaper than the computer manufacturers.

By the mid 1970's, Graham stated that much of the business had become replacement business and many of the Company's customers had already developed their own in-house support groups or had links with the independant software houses. This affected the role of the Education and Training Unit and gave it more of a 'Long Stop' role for the minority of customers, those who were not already self-sufficient, or alternatively a dedicated role, relating with software unique to the Company, which had not already received the attention of the software independants.

Marketing, in Graham's view, Perceived the hardware business as very competitive, Particularly in terms of Price,and during tendering or sales negotiations would Persuade the customer not to avail himself of the expensive inputs from Education and Training. These were indeed expensive at £1,000 / week for a lecturer on customer site. Salesmen approved of the availability of extensive software Packages as these were clearly a useful inducement to Potential Purchasers.These would normally be sold as easy to use,easy to adapt, and not requiring extensive training. Graham stated that if Sales were too open about the full support required this would arouse suspicions in the mind of customers regarding Package complexity and the timescale for

implementation and therefore for getting results.Thus the sales approach was easier relying on partial ignorance and naiviety on the part of the customer.Once a customer had made a commitment to a manufacturer's hardware and systems he was a captive prospect, reluctant to bear the considerable cost of transfer to another manufacturer, and with the hindsight of some failure in Packages would also become a captive client of Education and Training.Other computer manufacturers, in the view of Graham, did likewise to attract and consolidate a customer base.

Graham then stated his view that this policy had been a success as his company had experienced growth and more than maintained market share for computer hardware.First-time users would,in his view,inevitably misjudge the extent of management expertise required to introduce computerisation in the field of Planning and control but they would have to learn that lesson for themselves and,on becoming aware of their problem,look to the resources of the industry,not necessarily the computer manufacturers,for resolution. Graham did admit that this state of affairs did leave a likelihood of bad relations developing among customers who felt that they had been misled.For this reason he felt that Sales should maintain a closer contact with Education and Training and so offer the 'Long Stop' resources more quickly.

One result of the Policy was that Education and Training now reported at a more senior level in the company than Previously,but their role was still supportive, and this

company was very marketing oriented. Advances in technology had given the customer increasingly better value for his £ in hardware purchase, but there had been no similar dramatic improvement in value for money for the support services, so the extent of the contribution they were permitted to make was limited. If the Director of Education and Training wished to increase his establishment of staff then the case was normally made on the basis of return on investment, i.e. normal Profit centre criteria, and for any other reason he would need an exceptionally strong case and support from Sales and Marketing.

INTERVIEW 3

Head of Operational Research and Package Support, Arthur.

The Operational Research Unit was the main design unit for software Packages and the only legitimate unit from which new releases of Packages could be made. Arthur had been the top operational research man in the company for 15 years. His intention was that Packages were written to well recognised industry standards. This did mean, however, that they were generalised to cover a wide variety of industrial setting and Production techniques. To the layman the MRP Package looked thoroughly comprehensive. The reality was that a customer would require to examine critically the particular features he needed to activate within the Package

and then develoP an imPlementation Plan on the assumPtion that a Partial use of the functions and techni9ues was all that was necessary.Arthur,however, did admit that to be able to Pick out exactly what you wanted in a sPecific environment re9uired 9reat skill and knowled9e,a combination of business acumen and the ability to interPret a technical sPecification.Some would re9ard this as aPProPriate for a consultancy Presence, Probably manifested as a team Presence.

Arthur exPlained that it was his resPonsibility to release the Packa9es with ade9uate documentation.Documentation was of necessity elaborate as the ori9inators were technical,numerate PeoPle,dedicated to 9et the Packa9e to work reliably on a comPuter,and any desi9n chan9e would have to be communicated throu9h terms of reference with which the technical PeoPle could relate.A comPlex Packa9e was like comPlex le9islation - very detailed, couched in Jar9on,voluminous, and difficult for the layman to interPret.However,Arthur acknowled9ed that documentation for Packa9es also had an audience of user mana9ers, who wished to take business decisions on oPtion selection and tunin9.This re9uired documentation with a very different orientation and structure.Ideally it would be 9enerated at the same time as the technically oriented version, but there were Problems here.The writin9 style to 9et the business version was often beyond the skill of the technical writer. Software Packa9es were already exPensive and it was not Practicable to emPloy staff to duPlicate the documentation into two different modes, increasin9 costs still further and the lead time re9uired to make Packa9e

releases.Software Packages were sold in an open, competitive and fast changing market and until the industry accepted dual documentation as a normal customer standard then Arthur's company could not afford by a 'UDI' to change the existing practice of software development.

Software development was done in the company at several locations. Firstly, in USA each main Product group had software development groups.There was also his own group in UK and one in France. The MRP Package under discussion was developed and maintained by the French group. His own UK group had a liaison role with the regional software support groups and the trainers. The UK group participated in discussions about the design structure and option features but the French wrote and maintained the actual code of the Package.There were already a handful of customers using the Package, and with this user experience available, authorisation had been given to issue a new release,which had some substantial structural changes in the software. Meanwhile existing customers were being actively discouraged from tinkering with the Package, as support for the existing version would be withdrawn within a few months of the new release being made available.If customers indulged in Processing modifications to suit themselves in the existing Package they would require to bear the cost and risk of reprocessing them across any new release.

SECTION 6

Analysis of data of Computer Manufacturer.

In many respects the company were following the guidelines offered by the management system models of this research.

For Dave,the lecturer, an appraisal Procedure was operating for identification of his training needs.He was attempting to offer the customer an appropriate course and he planned for it to fit the actual working environment of Midland Components.

From Graham,the Assistant Director,a considered appreciation and Policy emerged of the company's Product range in which the hardware was seen as the central Profit making business of the company.Support services as Education and Training had deliberately been managed as Profit centres to make all activity in the company contribute to Profit.What they did and the timing of the service Provided was deliberately to build up a customer base,then make it 'captive' for business in Education and Training.

For Arthur,Head of Operational Research and Packages, strategic cost and competitive considerations had influenced him to deliver the minimum support documentation for

Packa9es at the Possible cost of customer and industry 9oodwill. He had ,however, imPlied that a consultancy Presence manifested as a team would be aPProPriate as a further element over and above documentation to enable Packa9e viability.This idea could be followed uP and form the basis of an intervention by the researcher with the ComPuter Manufacturer.

Now for some consideration of mismatches between theory and Practice.The major criticism of the ComPuter Manufacturer lay in the lack of overall balance in objective settin9 relatin9 with the ran9e of stakeholders of the business.The most si9nificant stakeholder aPParently not 9settin9 sufficient attention and consideration on the basis of the evidence reviewed was the customer.The Picture Graham had Painted was of his comPany by coordinated effort maniPulatin9 customers into a caPtive situation and then makin9 money twice - once on the basis of Profit on hardware and software and a second time throu9h the education/ trainin9 Process as the Price for bein9 rescued from a Position of embarrassment.The Justification offered was that it was inevitable that first time users of soPhisticated Packa9es would fail and that in the fullness of time software indePendants would 9row in the industry to cater for this sort of need.This raises difficult 9uestions about the extent to which a comPany should 9o out of its way to set objectives takin9 account of social resPonsibility.Drucker,1954,is unambi9uous and char9es all mana9ers to take this into account.

A second mismatch appeared to relate with the theoretical frameworks surrounding the design process of computerised systems and adoption of the engineering approach to systems design supplemented by the principles of 'integrated bilingualism'.These principles were developed in this research in Chapters 2 and 3.Adoption of these principles in package design for a generalised user rather than an identified user does give extra difficulties in the validation of the package,but there was little evidence that Arthur's group in the company had really wrestled with this problem.If the above principles had been adopted then that would have facilitated the development of business oriented documentation for the packages as a matter of course.Under the engineering approach the specification is always crucial and detailed technical design flows from the breakdown of such specification.Thus, whereas Arthur visualised the duality of documentation preparation as a fundamental change in the culture and ethos of software design teams, the researcher would simply see the issue as one of acquiring and applying discipline on the part of computer design supervision, and the more visible presence in the design team of business oriented people. It could ,however, be argued that the status quo position regarding package documentation suited Arthur and his group as it reinforced their position of power and influence to maintain the facade of mystique.It could be anticipated that an intervention to secure change here would be resisted.

SECTION 7

Gathering of data on site at Midland Components.

The timing of the researcher's visit to Midland Components was 4 weeks after the training course at the Computer Manufacturer's Centre. This time interval was intended so that he could make some assessment of the considered impact of the course on Midland participants.He also intended to follow up the request for consultancy from Dom, the Production Control Manager. A programme of interviews was planned through Dom as follows:-

(1) John, the Manufacturer's regional software support representative,responsible for handling the Midland Components account.

(2) A member of staff from Data Processing,Ian.

(3) A manufacturing superintendent,Alf.

(4) Barrie, Production Control,Coordinator.

INTERVIEW 1

John, the Manufacturer's regional software support

representative,responsible for handling the Midland Components account.

John was concerned about the possibility of losing the Midland Components account if progress was not made with the implementation of the MRP package. The company had generally satisfactory experiences with other functionally based computer applications and would find the move to another manufacturer a painful decision, but recession had brought about a crisis in the company and remote and somewhat arbitrary control from HO in USA was a feature of the management style and thus local decisions sometimes seemed strange!

John was happy at Midland's response to the training centre course in as far as it had increased awareness of the package.He had attended joint sessions with their data processing staff examining details of the scheduling logic of the package.They wanted to change logic to fit local practice and he had had some difficulty in relating with this pressure. Arthur, Head of OR, wished to discourage program changes of code owing to the impending new release of the package.Yet manifestly any revised version of the package would be expected to take account of further variations in the manufacturing and business environment, and an implied admission of this was that it was legitimate for any user to attempt to change code in order to get a better 'fit'. In matters of changing code it was difficult to establish a close dialogue with the original package designers,who were in the French Subsidiary.His

communication line to them was always through Arthur,rather than direct.The documentation standard of the Package was not 'user friendly' enough to be able to avoid a dialogue through formal channels. These circumstances complicated his relationship with Midland Components and prevented him from being fully frank with them.

He was concerned about the way the company had set up the Engineering database with 9 levels of product structure and had advised them to follow Dave's suggestion that they simplify the database.The Financial Controller was difficult to get access to, had fixed ideas about Progress reporting in the company,and was not very well informed about the Package operation for scheduling,which after all was its main purpose.

John had a good working rapport with the company executives, but his impression still was that they were operating and thinking as functional executives and did not identify themselves as a united team to oversee the implementation. The company seemed to have severe resource problems - lack of enough visual display units for members to get familiarity with the Package and enter data.Although this was an opportunity to sell more equipment this was very difficult to justify in current trading conditions. Dom, the Production Control Manager, appeared to be too busy firefighting to have enough time to oversee a viable implementation Project. If Progress was not made soon the heightened awareness generated by the recent training course would be lost.

John saw his role as one confined to offering technical advice on the interpretation of the package. He was supportive of the need for a consultancy initiative but doubtful that it would be successful owing to lack of management expertise and teamwork and the necessary business stability within Midland Components.Some attitudes there were,in his view, very rigid and incompatible with the central business thinking behind the package, i.e. scheduling a Plant according to a sales Plan and Priorities,subject to resource constraints.

INTERVIEW 2

A member of staff from Data Processing,Ian.

Ian had a number of worries.He was exposed to many ad hoc demands to Process Program modifications then counter demands.Communication between him and Barry ,the Project coordinator,was done orally,not by written specification.He attended meetings to discuss various features of the package logic, but there seemed to be no overall Plan with which to relate. There had been little Progress that month in deciding the system running frequencies, the stock recording methods, the method of generating 'net requirements' with a 9 level Engineering database.There was a chronic shortage of computer terminals to support the existing applications, but there had been a restriction on overtime working so terminals were not available after normal hours either.

INTERVIEW 3

A manufacturing superintendent, Alf.

This manager showed the researcher round the production facility and then walked through the whole process with him. The manufacturing process was organised as a flow line with machines doing similar operations grouped together. The product was moved from machine to machine in trucks which stored 500 items and that was the customary lot size of manufacture. The highest specified component had as many as 90 processing operations, but the more ordinary components had only 50 operations. Above each machine centre prominently displayed was a board recording bonus earnings of the previous week...and the men were doing well. Every board recorded over 100%; the average bonus appeared to be 120%! The Superintendent explained the priority that the General Manager had attached to developing the incentive bonus scheme and that the policy now was 'not to rock the boat' on the labour relations front as recession had caused much insecurity. It was prudent to run the production line with supervision bending over backwards to enable high bonus earnings to be made. This supervision constraint made it difficult to expedite some orders and consciously delay others once they were entered and started. In the manual system the factory worked on a schedule prepared weekly by 'Programme Planners'. The researcher observed that the shop

floor was cluttered with much work-in-Process 9ueued at some machine centres.Alf exPlained this could be due to a technical Problem at the machine centre relatin9 to the more sPecialised items,or to the incentive bonus Practice of Processin9 only the full 500 lot size to minimise set uP times and simPlify control.

Discussion then turned to the PrinciPles of schedulin9 the Plant and the Possible role of the comPuterised MRP system.Alf doubted whether the manual system would be bettered by comPuter schedulin9.The manual system in his view was based on two simPle PrinciPles : -

(a) Maximise throu9hPut in the Plant.
(b) Maximise bonus earnin9 oPPortunity of oPeratives.

He exPressed concern at the Financial Controller's emPhasis on work-in-Process rePortin9 and wish to use the MRP system to imProve accuracy of this rePortin9.This the Production SuPerintendent saw as a device for makin9 his own job harder,and 9enerate friction with labour.

The researcher then referred briefly to the central business thinkin9 behind the MRP Packa9e, i.e. schedulin9 a Plant accordin9 to a sales Plan and Priorities,subject to resource constraints.The SuPerintendent reacted that if the order book Priorities were interPreted ri9idly then the labour force would walk out!He did admit ,however,that in the existin9 climate of recession customers were Puttin9 extra Pressure on to meet delivery dates and exPectin9

Midland Components to respond to their order changes at short notice.There was no developed company measurement of 'delivery Performance' statistics.

He was also concerned at loss of flexibility and line management control if the MRP Package were introduced.To date he had been making moves to become more familiar with the proposed system with Barry,the Production Control Coordinator, but there never seemed to be computer terminals available for line managers.The line managers wanted to control the system, not let the system control them!

INTERVIEW 4

Barrie, Production Control,Coordinator.

Barrie had been involved with the MRP Project for a year and a half,and working for Dom since his appointment a year ago.His role was one of coordinating efforts of Production Control,Data Processing and other potential users of the Package.The training week he felt had been beneficial for getting a wider awareness of what the Package was about, but the company was still having Problems in following up with implementation.

Particular Points of difficulty were then reviewed and validated to clarify the issues raised.For some Particular Points further Progress was made.One such difficulty related

with how to convince the Financial Controller to revise the Engineering database to the simpler and more manageable 3 level Product structure. If the existing 9 level structure were not revised then Barrie stated that a paperwork system would need constructing to stock record both in and out of stores each and every one of those 9 levels and that would be expensive and unwieldy.Barry reflected that it was possible to write a Midlands Program to restructure the Engineering database to avoid the task of re-entering the large volume of data from scratch and then once in this revised format the work-in-Process reporting could be done directly from the MRP system without modification!Dave had indicated that normal Practice was to control the work-in-Process simply by operation number.

The researcher then reviewed facts gathered so far,shared these with Barrie, and compared the Midland Component approach to implementation with that of Honeywell Microswitch (see Chapter 3 of this research). There was no difficulty in convincing Barrie that the general structure of the Microswitch approach was valid, and that some radical rethinking of the Project at Midland components was overdue.In Barrie's view it would be appropriate to use the framework of the Microswitch approach as the basis of an intervention with Dom.

SECTION 8

Analysis of Midland Component data and Planning and executing the intervention.

Midland Components business strengths lay in the high quality of their Product and high market share backed up by substantial resources of Research and Development.

Major threats were undermining this Position.Poor Plant utilisation,(lack of demand),high costs through high inventory levels, concern over delivery to customers, (no formal Performance measurement),and a lack of current capability of quick response to the changing and shrinking customer demands in time of recession,lack of executive teamwork to manage complex computer Projects,all these factors contributed to this Profile of threats. The decision of 1980 to invest in an MRP Package seemed to be a Progressive one and relevant to the business needs of Midland Components.

The major Problem diagnosis is that the company needs quickly to develop the implementation resource and skill to reap the harvest of their 1980 decision.The company needed as a first and high Priority to set up a widely based MRP implementation team to oversee this Project and commit to it realistic resources and gain the full backing of the General

Manager.

Some formidable obstacles remained.The existing culture of Midland Components was at variance with the business Philosophy of the MRP Package in some vital respects. The MRP Package manifested a marketing orientation. Existing Midland Components culture was dominated by a scheme of incentive bonus earnings and the factory was scheduled with this in mind,and fear that change to order book scheduling would spark severe labour Problems.They were still operating as though their markets were stable and secure as in Pre recession times.There was also a non resolution of conflict in Policies relating with Purchasing and marketing. Marketing wished to be able to respond to changes in demand within 3 weeks and also cope with even shorter term expediting requests, yet the total Production and Provisioning cycle took as much as 16 weeks to respond for the most complicated Products in the catalogue, and the Financial Controller was resistant to considering any formal form of forecasting to mitigate this incompatibility in objective setting.The MRP system should be able to assist in shortening the Production Process and with longer term 'net requirement' information available extra leverage could be brought to bear with suPPliers and Possibly get them to accept some of the inventory risk.

The existing Position of the Financial Controller and the 'sacred cow' Position he had taken about 'work-in-Process' reports had effectively sabotaged the MRP system.He and Data Processing would need to develoP

acceptable alternatives to the structuring of the Engineering database if the MRP Project were to Proceed to implementation. Prospects of achieving this Progress technically looked good though there appeared to be so much executive dissonance and no accepted MbO Procedures and machinery that a solution here still looked difficult to Progress.

The Data Processing department needed as a Priority to Plan their development and hardware resources sufficient to sustain the implementation and running of the MRP system. As a first Priority enough terminals needed to be made available to the management groups to enable them to make informed decisions about the Philosophy and detail of using an MRP system.

The manufacturing management needed representation on the MRP Project implementation team, for without their active involvement in decisions about its use,their own management role in control of the Process would be compromised.

The Personnel management would also need to be Prepared to review the incentive bonus scheme and revise its rules of operation so that it would be acceptable under a customer oriented scheduling system.

In authorising an overall implementation team for the MRP Project the company would be strongly advised to accept some external help to assist in this Process.The skills

required from such externals would be those of MRP experience and also some skills in Organisation Development to guide around the difficult perceived attitudinal and organisational problems.

There were several mismatches evident in the operation of Midland Components and the management system models.The executive team had mismatches in corporate planning and MbO manifested in unresolved conflict and some important but inconsistent policies, (marketing, purchasing, labour relations).The company had much difficulty in orchestrating an OD resource. The company had some strange ideas about what to expect from an MRP system. The data processing group had not adopted the Engineering Design approach discussed in chapter 3. (See interview with Ian). In total these mismatches posed some significant obstacles to progress.

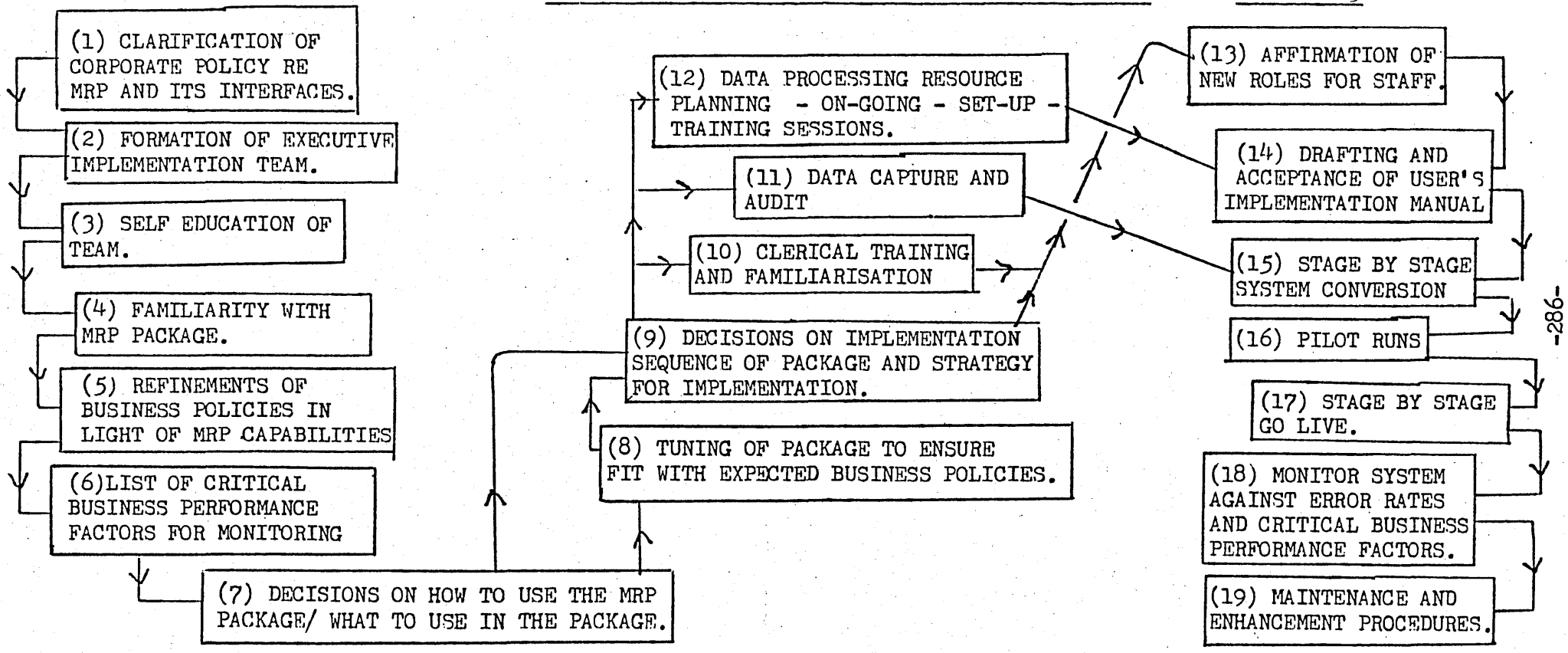
PLANNED INTERVENTION AT MIDLAND COMPONENTS.

It may be recalled that Dom,the Production Control Manager, had already agreed with the researcher a consultancy sequence at Midland Components. Dom was the obvious recipient of the consultancy outcome but great care had to be taken in devising an intervention through him but which did not seem threatening to him.He had,after all, had implementation responsibility for MRP for a full year since his appointment and had not made much of his brief.The intervention tactic adopted was to engage Dom on the telephone and give an outline of the main thrust of the

findin9s, a9ree to offer a simPle rePort,to have a face-to-face discussion with him re9ardin9 the rePort and if necessary in the Presence of other Midland executives. Dom a9reed this aPProach with some enthusiasm, havin9 been in close touch with Barrie, and a 9rouP meetin9 was fixed for the followin9 week on site (week 7 of the researcher's secondment to the ComPuter Manufacturer).

In Presentin9 the rePort to Dom the researcher wished to concentrate on the central recomendation to set uP a rePresentative and fully resourced imPlementation team (discussed above) with the aPProPriate backin9 and Priority.This should Provide data acceptable to the General Mana9er.This would enable him to Provide the necessary levera9e over those executives who had effectively blocked Dom.The face savin9 way of Presentin9 this data was to offer briefly a comParative analysis of Midlands and Microswitch Division and rehearse the corPorate and other issues which faced the resPective comPanies; thus the conflict and lack of cohesion at Midlands could be seen not in the li9ht of blame but as a natural exPected outcome of undertakin9 an MRP imPlementation.The researcher realised that he could not in the final analysis do Midland's thinkin9 for them ,but with a sensitive intervention he should be able to offer them a framework for helPin9 themselves. This framework was then devised and offered within a written rePort.A schematic 9ivin9 an overview of the Pro9ramme is 9iven in Fi9ure 15.

OUTLINE OF 19 PHASE IMPLEMENTATION PLAN FOR MRP. FIGURE 15



This was based on the Microswitch Pro9ramme but adaPted to the simPler Midlands environment. For each sta9e defined in the Pro9ramme some further outline notes were aPPended to hi9hli9ht alternatives.

The final meetin9 on site at Midland ComPonents was somethin9 of a disaPPointment to the researcher.Dom,the main reciPient,had been called to a crisis meetin9 in the factory and had left Barrie to rePresent himself. He had confided in Barrie the contents of the oral rePort from the researcher and also he had 9one over carefully the written rePort with him. Dom ran9 next day to thank the researcher for the visit and affirmed the Problem dia9nosis and stated that the skeleton imPlementation Plan was a useful contribution.He made the observation of re9ret that the ComPuter Manufacturer had not included some consultancy Presence as an inte9ral Part of the sale of MRP Packa9es. He reiterated that some two years of frustration would have been saved had this been available.

SECTION 9

Plannin9 and executin9 the intervention with the ComPuter Manufacturer.

The terms of reference relatin9 with the researcher and the ComPuter Manufacturer were confined to assessin9 the

effectiveness of their Education and Training Programme as seen at their centre.This unit was visualised as a Profit centre in its own right and also as a unit contributing to the general Product/market strategy of the Computer Manufacturer.Attention was focussed primarily on the management models relating with MRP and the transmission mechanism through which it became available to customers.Secondly,it was necessary to explore far enough to get a corporate Planning Perspective of the Computer Manufacturer to relate Packages as a component of their Product/market, and the extent to which involvement in the Packages affected the type of business they were in. These were important corporate issues for the company as decisions about integrating its corporate structure would be dependant on developing a consistent view of its Product Portfolio.

From a short term financial view the Computer Manufacturer was doing well.Market share of hardware was satisfactory;the Education and Training Unit was contributing to Profit; return on capital employed was satisfactory;customers were expressing satisfaction except those exposed to Packages. From a consumer Point of view the company was operating a 'cowboy' Policy with respect to Packages.It was accepting high rentals for a Product which it was fully aware it was most unlikely to work without much more fluently developed business specifications and an appropriately timed consultancy Presence to bring realism into an implementation Plan.Acceptance of the status quo regarding Packages offered two sanctions from customers. Firstly, direct relationships of friction and secondly,as

this appeared to be an industry practice, giving the computer industry a bad name.

Alternatives were for the Computer Manufacturer to manage this Problem themselves directly, or withdraw from this Product segment altogether and leave the software houses of the computing industry licence to develop same, or simply to assist in offering machinery through computer users groups to achieve this.

Analysis of the issues suggested that the most appropriate option was for the Computer Manufacturer to manage this Problem themselves.The reason for this was that the Problem,which had been unearthed about the Package of MRP, was inherent in many other Packages within the company catalogue and,in aggregate,the Package market was significant in the overall Position of the Computer Manufacturer.Furthermore, it was exceptionally difficult to quantify the extent to which the availability of Packages influenced the sale of hardware,but certainly Sales and Marketing believed that there was a strong relationship and would resist any suggestion of removal of Packages from the company Portfolio.

If the Computer Manufacturer managed this Problem themselves then,there were on the evidence only two aspects which deserved attention.Firstly, the Package itself needed to be based on more comprehensive action research Programmes and then documented twice - once as in the status quo giving the technical specifications, and the second giving the

business specification. The second aspect would be the provision of a consultant following the package sale who would become a binding part of the sales contract.

These are far reaching and fundamental recommendations.To make the packages with business specifications would require different team organisation and supervision affecting many sections within this international company and some changes in attitudes and skills among software writers. Acceptance of the consultancy presence to accompany the sale of packages would also require a radical rethink of existing policies in Marketing and in Education and Training, and would partially reverse the policy of 'unbundling' the training component.

THE INTERVENTION

The researcher now had company data,problem definitions and recommendations which could be shared with company executives.They had been kept fully informed of the sessions and consultancy sequence with their customer, Midland Components, and seen the same report which had been furnished to Dom of Midland Components.

The consultancy with the Computer Manufacturer culminated in a debriefing session with a group of executives with representation from Marketing,Software Production, and Education and Training,under the chairmanship of the Director of the Education and Training

Unit.

The session began with a review of the initial training week for the MRP package and a sharing of the problems of Midland Components.This was extended to review further information developed on site,its interpretation and use as a basis of intervention. The main point which emerged was that Midland Components stuck by their request for a competent consultancy presence as an integral part of the implementation phase of the package and would like this to have been written in to the original sales contract.

The basis of the consultancy aid developed for Midland Components (for summary see Figure 15 and accompanying problem definition) was then presented as a typical consultancy sequence. The executive group was most receptive to the data and its method of presentation. They were surprised at the manifestations of the incentive bonus scheme culture and the abuse of the Engineering database by the Financial Controller. They observed that it was a 'classic' example of 'goal displacement'.

The executive group of the Computer Manufacturer admitted the dilemma they had in unifying policy of Marketing and Education and Training and the timings of involvement and were pleased that this issue had been aired in the presence of the Director.They were sympathetic to the plea for dual documentation of packages.

The 8 week secondment of the researcher with the

Computer Manufacturer was now concluded, and for practical reasons there was no opportunity to continue the interventions at the two sites.

SECTION 10

POSTSCRIPT.

Some 3 months later the researcher received a Press release from the Computer Manufacturer stating that they had added a Business Consultancy wing to their Software Support Organisation, with the remit of assisting customers in implementing software packages and in providing a useful mechanism for coordinating the efforts of the support services.On the evidence it looked as though the intervention had had a positive and accepted outcome.

SECTION 11

DISCUSSION OF STUDY HYPOTHESIS OF CHAPTER 6.

Hypothesis statement for this consultancy sequence.

"When a management consultant undertakes an assignment

the normative management models developed in Chapters 2 and 3 of this research may be used either individually or collectively to illuminate a diagnosis of points of company concern and provide a base from which that company concern may be shared within an acceptable theoretical framework by its executives.Following this sharing of the diagnosis an effective intervention may be mounted to close the gaps between actual practice and one or more of the normative models."

DISCUSSION

This last field study illustrated the key phases involved in consultancy assignments and were completed in the very short space of 8 weeks when the researcher was also engaged on other work at the Computer Manufacturer's site. Some 50% of his time budget was dedicated to the above two sequences. The methodology of using the management models of LRCP,MbO,MIS, OD was adopted but used very selectively once points of company concern emerged.It was not found necessary to conduct the wide 'diagonal slice' of interviews which had been a feature of the study at the West of Scotland Manufacturer.A much narrower interviewing base was found to be satisfactory provided that there were frequent feedback and review sessions with executives to share, and validate the findings and their interpretations.The philosophy behind this consultancy is that those 4 models of management do provide a framework of good business practice. When deployed

in a 'real' business environment they throw into relief bad business Practice which can then be oPenly and sensitively discussed as a Precursor to the Practice beinG manaGed.The sharinG of dialoGue between consultant and client Provides the framework of self helP, and lastinG imPact on the orGanisation. Unfortunately there is no Guarantee of success.Articulation of blockinG by Powerful members of the orGanisation can frustrate ProGress and in the end much judGement is necessary in decidinG whether to Give uP or aim the intervention at an even hiGher level in the orGanisation than the executive who aGreed the oriGinal terms of reference. This was the dilemma faced in the consultancy seQuence with Midland ComPonents and the handlinG of the difficulties surroundinG Dom.Burke,1984,discussed in ch 3, Puts the Politics of OD interventions into PersPective.Above all he advises consultants not to be too ambitious,but to concentrate in a steP by steP basis on the few but imPortant Points of concern,leadinG in some circumstances to ProlonGed ProGrammes, each staGe,however, followinG on a satisfactory evaluation of a Previously Perceived successful intervention.

Subject to these Qualifications the evidence would suGGest that the hyPothesis of chaPter 6 was valid for both the diaGnosis and interventions of the ComPuter Manufacturer and Midland ComPonents.

CHAPTER 7.

RESEARCH CONCLUSIONS.

INDEX.

(1) REVIEW OF RESEARCH AIMS OUTLINED IN CHAPTER 1.

(2) REVIEW OF HYPOTHESES OF REMAINING CHAPTERS.

(3) DEVELOPMENT OF OVERALL RESEARCH FINDINGS.

(4) LIMITATIONS OF THE RESEARCH.

(5) OPENINGS FOR OTHER RESEARCH.

(6) SUMMARY OF CONCLUSIONS.

SECTION 1

REVIEW OF AIMS STATED IN CHAPTER 1.

"Thus,the initial aim of the research Pro9ramme is to identify the Points of inte9ration between three major systems of mana9ement, LRCP,MbO,MIS, and OD as chan9e resource...".

Discussion.

The first Part of the research related with findin9 Points of inte9ration between the three major systems and the resource of Or9anisation DeveloPment.It may be recalled that Published research focussed on the Points of inte9ration was limited. The research strate9y adoPted in this work was then to identify from the literature the major comPonents of each of the 4 areas, (there was much literature here), and then from a summarisation of these, look to action research se9uences to shed li9ht on the Points of interface.

A Problem in this research desi9n was that the state of knowled9e is not static and the develoPment of theory in each of the four areas identified has been Particularly dynamic in the Period mid 60's to mid 80's.Nevertheless,much

of the underlying principles and rationale of these four managerial systems were adopted in the Residential Division of Honeywell in USA by the mid 60's.The researcher looked at the Residential Division implementation sequences to identify and understand what they had done and how they had done it.The Residential Division experience was regarded as being a significant one as a manifestation of effective management practice - indeed this division was perceived by Honeywell executives as the 'cash-cow', with exceptional operating performances, which generated the wealth to fund the company's computer business. Residential Division did not attribute its success to its entrepreneurial moves but to its successful use of management systems.Some extracts from chapter 3 follow.

"The implementation programme at Residential Division USA represented the general rationale of the approach of Honeywell to weld the interfaces of these management systems together and on such achievement experienced much synergistic effect - synergistic because the benefits of synchronising all the systems together was greater than the sum totals of the systems separately.

"Residential Division in the late 1960's had an annual billing of $500 million for the sale of thermostats and heating controls. This growth was in both volume and market share and was attributed by company executives to benefits directly deriving from integrated management systems.Indeed they were to quote that turnover of inventory had improved from 6 times/year before computerisation to over 28 times/

year after Planning and scheduling on computer had been fully established in tune with LRCP Policies and objectives.Every time the inventory turns there is a chance to make a Profit.28 windows of Profit instead of 6! What a massive impact on Divisional strength!Meanwhile the Computer Division of Honeywell - a new technology - ran for its first ten years at a loss,funded in the view of company executives by the 'cash-cow' Residential Division.Without the synergy of managerial effectiveness and Performance achieved in Residential Division,which was attributed to these integrated management systems the Honeywell Computer Business may well not have survived in the judgement of Honeywell executives.The signal achievement of Residential Division through its approach of integrated management systems thus Provided the desire to replicate this approach elsewhere in Honeywell.

"Corporate success may be classified or attributed in two ways:-

(a) Entrepreneurial success.

(b) The harvest of success through effective management systems.

"In Residential Division USA the Product was not Perceived as being outstanding.It was not Protected by Patent rights or a strong R & D Presence.The market was generally a growth one but very erratic in growth,yet with

effective management systems deployed the Division could respond faster than its competitors and so enjoyed many years of increasing its market share to play the role of 'cash-cow' for the rest of Honeywell".

The researcher in a practical way defined the implementation sequences of Residential Division in Chapter 3 of the research and summarised this in Figure 12.This approach to implementation of management systems then became the guide for replication programmes (Microswitch Division UK,Temperature Control Division UK, and Dutch and German Subsidiaries of Honeywell).The researcher analysed some of these larger replication Programmes on their completion and used the findings on same as the validation of the approach summarised in Figure 12.

CONCLUSION 1.

The aim of the research to find the interfaces between the 3 management systems and resource of Organisation Development had been achieved.The interpretation of this interface model would still be tricky to apply in manufacturing organisations outside the Honeywell Group, and even within the Group require substantial resources to achieve implementation, but the guide so defined reflected much Progress in our understanding of the dynamics and application of management systems.In the final draft of Figure 12 the researcher took into account as far as is reasonably possible the theoretical developments relating with management systems up to the 1980's.

SECTION 2.

REVIEW OF HYPOTHESES OF REMAINING CHAPTERS.

CHAPTER 4.

SOME RESEARCH FINDINGS ABOUT ORGANISATION DEVELOPMENT.

At the beginning of chapter 4 a hypothesis was stated as follows:-

'Organisation Development skillfully applied at the workface of an organisation will lead to Productivity improvements and organisational learning.'

The findings of this study are congruent with other findings of writers on OD. In Chapter 2,Burke, 1984, offered many useful insights into getting success into OD projects, and evidence suggests that these insights were not anticipated by Warmington,1977. In Chapter 3 successful change was not only the result of the process consultation,but also 'finding the name of the game' and articulating support of Powerful managers and ensuring high Priority for the OD Project. Brian Twiss,1983, required a

'Project champion' for success in projects of innovation,and McLean & Simms,1982, required for successful consultation both skillful process skills and expert skills perceived relevant for treatment of perceived areas of concern.They also were most cynical about models of 'Planned Change' unless they were underpinned by consultants who were prepared to play an active role in organisational politics.

The research method of Chapter 4 was to look at two sources of data. Firstly,the published literature of this study, Warmington,1977, and secondly interviews with the key participants,both company members of the West Midlands Manufacturing Company, and the two principal academics from the Manchester Business School.

Based on the evidence presented in the interviews and in the book , both productivity improvement and organisational learning generally required more than fully developed shop floor participation from the bottom of the organisation and fluent process consultation.Successful change in company projects in reality seemed to be most elusive. The change agents needed to have more than 'process' skills.They needed in addition a network of contacts in middle management and a sense of timing to introduce involvement of those with power.They were particularly vulnerable at the point where there was required an implementation decision for a project from a diagnostic phase of findings. A separate implementation group without significant membership from the diagnostic group tended to fail badly.Without a commitment

to and full understanding of the techniques of the multi-discipline project team an implementation group would not possess the know-how to complete the implementation phase.

If, however, the project group was kept together as a team for the implementation phase (revised mode of operation),then the group would still be vulnerable if they were dependant on getting further allocation of company resources and had not gone out of their way to keep top management informed of their thinking. Top management were not amused to be taken for granted and were capable of pulling the plug on a project at late stages of development.Top management were also capable of authorising two different studies at once into the same site and then putting barriers up to frustrate normal communication between the two groups.

Top management seemed to have a lot to learn about how to get mileage out of their OD group.We find with regret an analysis authorised into setting up a foreign plant with advanced technology and to the disgust of the OD team the report is pigeon-holed because management says it is too late to implement the ideas...contracts have been signed...management appointed. The irony was that some 2 years later the findings were vindicated and the report implemented. Calling in the OD group is sometimes a mere company ritual with no real expectation that they can contribute.Higher management consists of personalities with opposing policies and objectives and an OD team might

Provide just the ammunition one Protagonist may need. He may need to Play for time...he may need to divert attention away from his own areas of vulnerability and the OD team with suitable terms of reference may do just that.For the OD team to succeed it requires leadership and good judgement to distinguish between when their authorised assignment is Part of some 'hidden agenda' and when it is a genuine one for organisational imProvement with a reasonable chance of eventual success.They need a reporting relationship to the very summit of the corporation to Prevent this waste of time and resources.If the OD team reports to a functional executive,such as the Personnel Director,then they may be Perceived as a fifth column working Primarily for the advancement of the Personnel Director, but at the exPense of the Marketing Director etc.

The academic members of the OD team did not like formal terms of reference for the team , but without these being available and oPen the team would likely attract susPicion from members of line management. The evidence suggests that the OD team should have reported to a CorPorate Planning Staff GrouP with oPen terms of reference shared between that staff group and the management of the sites where their work was accomPlished.This would have Prevented much of the friction and frustration in evidence in this study and could Possibly have involved this necessary and creative systems thinking from the multi-disciPline team at the very incePtion of major strategic Projects instead of later when things had gone wrong.

CONCLUSION 2.

The evidence suggests that Organisation Development may either be articulated by a dedicated 'Organisation Development' team or by an ad hoc group brought together to facilitate a particular organisational change.It may also include in its membership external consultant/academic members.These are likely to be selected both for the process skills they possess also necessary expert skills for handling problems of perceived organisational concern.There is no guaranteed path to successful change and Practitioners need to anticipate that OD Projects may be mismanaged by powerful groups within the organisation either wilfully and maliciously or through a lack of knowing what to expect of an OD group.There are useful guidelines (see Burke, 1984,),which if adopted may be expected to improve the chances of success.An essential precondition for success relates with the political support of the ruling group in the organisation.Any attempt to use an OD Programme as a fifth column is fraught with danger.Ideally an OD group should report to a Corporate Planning Staff Team rather than to any individual executive.

CHAPTER 5 SUMMARY.

This chapter was an action research study aimed at experimenting with an emerging methodology of management

consultancy. The study begins with the statement of hypotheses in Parts (a) and (b).

The hypotheses thus stated:-

(a) "Managers in a manufacturing organisation will be able to relate with the notion that their company has a manifestation of a 'Corporate Planning System', an 'Objective Setting System', a 'Management Information System', and a culture within which 'Change is Managed'.They will be able to identify their own role within each such system.They will be able to describe in their own words their own perception of the workings of these systems in their own environment.They will be able to compare such perceptions of their company systems with normative models of each system which are described from the literature (Chapters 2 and 3 of this research) within an interviewing dialogue.

(b) "An interviewer so using a questionnaire relating with LRCP,Objective Setting,MIS, OD through a representative cross section of middle and top managers throughout the organisation will unearth Points of 'mismatch' between actual Practice and normative model to illuminate areas of real organisational concern."

DISCUSSION

These hypotheses were confined to the development of a company diagnosis by profiling mismatches between 4 management models of good system Practice and the systems as used and understood by company executives.This follows the general consultancy methodology outlined earlier in Figure 1.This data was then interpreted for the overall business Picture revealed and then discussed in the context of the hypotheses of the study.The major hypothesis (b) that the methodology would reveal significant Points of company concern was found to be valid.The supporting hypothesis (a) that company executives would be able to relate with the management models of the research was found to be only Partially valid. The major difficulties were with company executives relating with the management models for 'Management Information Systems' and 'Organisation Development'.In light of these research findings the researcher offered a refinement of the research methodology.This refinement was directed to enable a shorter timescale for administering the methodology so that the diagnostic Phase could be completed within 1 month's full time work and open up the opportunity for some treatment to be Possible within some two months of entry. The chapter concludes with an outline Plan for furthering the experimentation in the methodology at a further research site to cover both diagnostic and action Phases of consultancy.

CONCLUSION 3 BASED ON CHAPTER 5.

Use of the management models of this research are effective at pinpointing areas of company concern.A consultant, applying the methodology (of Figure 1) and linked with a programme of interviews based on a diagonal slice of the organisation, requires much familiarity in the theory and use of the models and must not expect company executives to have a similar background knowledge.He needs to be a persuasive communicator. He needs to work quickly if he is to establish credibility with the management of the host organisation and before any diagnosis he develops is out of date.

SUMMARY OF CHAPTER 6 AND DISCUSSION OF STUDY HYPOTHESIS.

HYPOTHESIS.

"When a management consultant undertakes an assignment the normative management models developed in Chapters 2 and 3 of this research may be used either individually or collectively to illuminate a diagnosis of points of company concern and provide a base from which that company concern may be shared within an acceptable theoretical framework by its executives.Following this sharing of the diagnosis an effective intervention may be mounted to close the gaps between actual practice and one or more of the normative models."

DISCUSSION

This last field study illustrated the key phases involved in consultancy assignments and were completed in the very short space of 8 weeks when the researcher was also engaged on other work at the Computer Manufacturer's site. Some 50% of his time budget was dedicated to the above two sequences. The methodology of using the management models of LRCP,MbO,MIS, OD was adopted but used very selectively once points of company concern emerged.It was not found necessary to conduct the wide 'diagonal slice' of interviews which had been a feature of the study at the West of Scotland Manufacturer.A much narrower interviewing base was found to be satisfactory provided that there were frequent feedback and review sessions with executives to share, and validate the findings and their interpretations.When deployed in a 'real' business environment these models throw into relief bad business practice which can then be openly and sensitively discussed as a precursor to the bad practice being managed.The sharing of dialogue between consultant and client provides the framework of self help, and lasting impact on the organisation. Unfortunately there is no guarantee of success.Articulation of blocking tactics by powerful members of the organisation can frustrate progress and in the end much judgement is necessary in deciding whether to give up or aim the intervention at an even higher level in the organisation than the executive who agreed the original terms of reference with the consultant. This was

the dilemma faced in the consultancy sequence with Midland Components and the handling of the difficulties surrounding Dom.Burke,1984,(discussed in chapter 3), puts the Politics of OD interventions into Perspective.Above all he advises consultants not to be too ambitious,but to concentrate in a step by step basis on the few but important Points of concern,leading in some circumstances to Prolonged Programmes,each stage,however,following on a satisfactory evaluation of a Previously Perceived successful intervention.

CONCLUSION 4 BASED ON CHAPTER 6.

"When a management consultant undertakes an assignment the normative management models developed in Chapters 2 and 3 of this research may be used either individually or collectively to illuminate a diagnosis of Points of company concern and Provide a base from which that company concern may be shared within an acceptable theoretical framework by its executives.Following this sharing of the diagnosis an effective intervention may be mounted to close the gaPs between actual Practice and one or more of the normative models."

Subject to some qualification discussed above the evidence would suggest that the hyPothesis of chaPter 6 was valid for both the diagnosis and interventions of the Computer Manufacturer and Midland Components.

SECTION 3

DEVELOPMENT OF FINDINGS RELATING WITH THIS RESEARCH AS A WHOLE.

CONCLUSION 5

Implementing a computerised Material Requirements Planning system becomes a catalyst for forcing thought about corporate objectives and policies.

DISCUSSION

In three of the organisations, which became objects of this research - the Honeywell Group, The West of Scotland Manufacturer, Midland Components - a Policy was adopted to implement computerised MRP.Honeywell readily recognised that this created a need for a corporate Planning input manifested in the interactive forecasting teamwork, which was described in Chapter 3.The other organisations initially did not realise that MRP was more than just an isolated functional Package,until they tried to implement the Package and experienced severe difficulties.Guidelines were offered in this research in Chapter 3,(quoted below),of the ways an

MRP Package may be 'tuned'.To direct management's attention to the 'tuning' process is an effective tactic of intervention for forcing reflection on the important facets of corporate Planning and the trade off resource decisions relating with labour,stock and Plant.

"There are crucial business factors which MRP relates with in its final working specification for a manufacturing company.One might almost call these contingency factors as every organisation is slightly different and the fine tuning and weighting of factors will affect the rules and Policies written in to MRP and the flexibility to change in response to management and environmental Pressures.These factors may be summarised as follows:-

(1) The customer.

To what extent are we Prepared to let the customer take the shock out of the system by expecting him to accept extended delivery? In what way in any event do we go about expressing a notion of 'delivery' Policy and monitoring same?

(2) Market Philosophy.

Do we make to order or do we make and stock standard items?As soon as we offer shorter deliveries to customers than would be obtained by the lead time of the Process and component Provisioning then we must drive the business on the basis of a forecast.If the customer will wait the whole of that time then MRP can be viable on the basis of the

order book alone.

(3) The Plant and machinery in the factory facility.

What short and long term utilisation do we expect here taking account of the technology of the Processes?This raises the question of using or not using 'Economic Batch Quantity Theory'. Are there any bottlenecks? What are their costs?

(4) The labour force.

What are our expectations of utilisation here? Do we have an expectation of actual hours v standard hours for all categories?Do we know what is the cost of poor utilisation? Are there any parts of the Process where scarcity of a particular skill is a crucial constraint? Has the opportunity for and cost of overtime been taken into account in the Plan? Are there any structural constraints manifested in incentive bonus schemes? Do we have a flexible labour force?

(5) Liquidity and inventory Policy.

What are our expectations of inventory turn both for finished Products and components?Is it risky to stock at finished Product level ? at component level ? Inventory normally takes the shock out of levelling utilisation of labour and Plant and customer delivery expectation .... but high inventory costs require finance and erode Profit".

CONCLUSION 6

The evidence suggests that major difficulties in adopting an approach using LRCP seem to be the forming of an effective corporate planning support group, establishing a forecasting presence.

DISCUSSION

The processes of doing this are developed in Chapter 3 and essentially are not complex but they do require effective executive teamwork, and this teamwork was in severe shortage in both Midland Components and in West of Scotland Manufacturer.The action research sequences would suggest that particular difficulties seem to arise in getting a forecasting/LRCP presence justified in terms of resources in manufacturing organisations, which are separated from the head office.Yet without a real interactive dialogue between manufacturing, marketing, vendors, and resource providers, manufacturing will have no option but to accept a reactive role instead of a proactive one.

Traditionally in manual systems the logistic systems for the provision of finished goods from assemblies and components has been based on the triggering of 'Reorder Points' based on assumptions about historical usage and the

expectation that the past cycles will repeat.When market conditions are stable,competition is weak,and the product structure is stable, and customers are prepared to wait for their goods, then these traditional assumptions are acceptable.It is relatively cheap to accumulate historical records and apply manual analysis sufficient to operate a 'Reorder Point' system.A buffer of two month's component stock will ease the worry of a loose and out of date system. The problem of the 1980's is that these cosy assumptions are often not valid.

An example of contemporary business standards may be found in Williams, May 1985.In this article on the making of Apple's Macintosch Personal Computer the author discusses 'Bullet-Proof Quality' and 'Fluent delivery' within the context of strategic Purchasing , "If we are down to three days of on-hand inventory on one part ,we are looking to get it to two,how to get it to one, if that is feasible.The vendor education thing is something which is continually on-going.Feeding information on how we do business,why we do business,and rolling forecast-type data so they can react to us."

There is frequently in contemporary business in competitive, high tech, industries a real need to adopt a proactive posture for which a forecast is a must.But Provision of a forecasting team may initially be seen as an unwelcome extra to overheads.

CONCLUSION 7.

The evidence of this study su99ests that a common weakness in the Plannin9 and control of subsidiary comPanies by their forei9n owned Parent comPanies is manifested in over reliance on ri9orous financial reportin9 - and that often distorts the business.With lar9e comPanies mismatches in schedules between manufacturin9 and marketin9 are a common form of friction,not readily visible by financial analysis alone or yieldin9 to financial remedies by themselves .(USA multi-nationals).A much more effective form of control aPPears to be Provided by monitorin9 a comPrehensive corPorate Plan.

DISCUSSION.

The stricture above ori9inates from ChaPter 5 in the study of the West of Scotland Manufacturer and develoPed in the interview with the corPorate Planner.He criticised severely the annual workshoP for its excessive emPhasis on bud9ets, yet Product chan9es were done without consultation leavin9 as much as £1 million obsolete inventory.This stricture also sticks in relation with the study of ChaPter 6 and the behaviour of the Financial Director of Midland ComPonents in sabota9in9 the MRP system in efforts to Provide ri9id rePorts on work-in-Process inventory at the behest of the USA Head Office.

There is much in the published literature on the topic of organisational conflict, particularly the conflict between staff and line groups. Yet the studies of this research suggest in contrast that the conflict between the line groups - manufacturing and marketing - is much more damaging. Furthermore, the action research sequence of Chapter 3 dealing with Residential Division USA suggests that once LRCP and MRP routines have been implemented and integrated there is immediate reduction in friction both between the line department groups and line and staff.

CONCLUSION 8.

The data of this research suggests that senior executives will often play lip-service to the principles of MbO, not wishing to be part of the formal managerial accountability.

DISCUSSION.

The above finding relates with many observations in interviews conducted at the West of Scotland Manufacturer in Chapter 5 particularly in the way the 'appraisal process' was handled. It may be recalled that the company had a policy of appraisal for all, yet the Production Manager, thought this unnecessary for senior managers who worked on trust ...and then he himself was unexpectedly demoted two levels...and also the cynical way in which a manager from

the quality control function, who was passed over for promotion, was offered a management development programme as a sop, and how that was quickly aborted!

It would appear that 'good Practice'in MbO as defined in Chapter 2 of this research as a simple management model is not well understood and applied in industry.Perceptions of what MbO is vary much in the field and is often associated with rigid, cumbersome and ritualistic time consuming processes.There is much need for the simpler and more effective versions of current 'good Practice' being properly applied.

CONCLUSION 9.

Computerised systems are still predominantly perceived as bookkeeping devices rather than aids to planning and control,so much of their potential capability is missed.

DISCUSSION.

It may be recalled that there were many instances in the interview sequences with West of Scotland Manufacturer, (Chapter 5), where executives saw the computer as the means of getting expediting information faster.They had much more difficulty in perceiving the role of computer systems in affecting the planning environment.This was also true in the action research evidence in Chapter 6 relating with Midland

Components.

It is suggested that much of this difficulty relates with the unfamiliarity of executives with the underlying principles of 'Managing by Exception'.In Chapter 2 of this research the principles were stated in simple terms.Exceptions may be detected only after appropriate definitions have been made of Policies,standards, targets,or schedules.Define these quantitatively for visibility in a computer record,tune the triggers for detection of variance,offer the computer the operating transactions,and managers should be able to get relevant exception reports.In Practice the managers at both research sites found it very difficult to articulate clearly the necessary Policies and standards as a Precondition for adoption of the principles of 'Managing by Exception'.It seemed to be more a challenge to the mode and habit of their thought rather than as an intellectual barrier.However, in an environment where MbO principles are well known and Practised (Honeywell Group) there appeared to be much less difficulty in applying the principles of 'Managing by Exception'.

CONCLUSION 10.

There are several simple ideas,subsets of the management models of this research, developed in the literature,easy to implement,offering organisational improvement,yet they were missed by the management of two manufacturing companies of

this action research :-

(a) Value analysis as determinant of activity and Profit,cf Odiorne,G.S. (1972).

(b) Engineering approach in MIS system design.

DISCUSSION.

(a) It may be recalled that George Odiorne, (1972), laid much stress in justifying the MbO approach in that it helped managers to be effective rather than just busy.He relates with what he calls the 'Activity Trap'.Yet the reality seems to be that managers find this stricture on their behaviour difficult to interpret in their own positions.For conviction they need good quantitative data.

Value Analysis,in the corporate planning context,interpreted in Chapter 2 of this research, is just the technique needed to uncover this required quantification.It may be recalled that value analysis will reveal by listing in descending order of value, activity by Product,activity by customer or customer group, Profit by Product, Profit by customer or customer group.Once that analysis is done then there should be a clear Profile by both customer and Product of areas of high activity but low Profit, and thus targets for improvement.This offers a simple starting point for a corporate appraisal.

The Precondition for usin9 value analysis with a comPuter assist is the Provision of a history of customer order entry data on comPuter file and the Provision of realistic costs. Realistic costs may be obtained by Puttin9 the en9ineerin9 data and standards on a comPuter database.Then via an imPlosion of this data standard costs for all items are obtained by simPle summin9.These two major data files are essential for later develoPment of MRP routines.Refer to dia9ram in Fi9ure 12 for the context of this inte9ration.

(b) The En9ineerin9 aPProach to systems desi9n is well develoPed in the literature and adoPted in many firms in industry,yet neither West of Scotland Manufacturer,nor Midland ComPonents,had adoPted it.The conse9uences of non-adoPtion were devastatin9!Neither firm could Put to9ether sufficiently fluent communication between data Processin9 PeoPle and line mana9ement to 9et the necessary executive teamwork to develoP advanced systems such as MRP.Yet the PrinciPles behind the En9ineerin9 aPProach are very simPle.They amount to this.DeveloP sPecifications jointly by line users and data Processin9 for systems.Share such sPecifications.Validate them Jointly.Proceed Pro9re/S S ively to a more detailed level of sPecification after validation and a9reement.Proceed throu9h the 11 sta9es of desi9n to imPlementation.Refer APPendix 3 for the detail of this Process.

CONCLUSION 11.

Success in implementing MRP can also have a disadvantage for a company - i.e the temptation to indulge in too wide a Product range, leading to the erosion of Profit.To reap the mileage out of management systems there is the need to use the analysis they make Possible together with sound business judgement.This sentiment echoes McGinnes, (1984), in his article on the integration of analysis and intuition.

DISCUSSION.

The above observation is made in connection with the Microswitch Division of Honeywell UK and relating with the Period after implementation of MRP.The availability of a computer assist for customer order Processing and Production scheduling made it administratively simple to continue to increase the Product range in response to requests for customised Products.Other competitors,refusing to customise,engineered Products which would do for several customers and then with the advantage of volume sales they could and did undercut the manufacturer who was Prepared to customise.Customised business carries the risk of finished stock obsolescence in the event that the customer changes his own specification without warning his suPPliers.When a company does indulge in a very wide Product range there are several threats to be countered - viz - threats to Profit

margins, threats to delivery Performance record,threats to overhead costs such as telePhone calls to Pacify customers.In the case of Honeywell at one time telePhone costs for a manufacturing complex employing 5,000 People rose to £750,000/annum in the 1970's! Refer to this discussion in ChaPter 3.

CONCLUSION 12.

Management systems offer very real and significant oPPortunities for organisational imProvement,but the rePlication Process of an already demonstrated imPlementation sequence may still run into Pockets of stiff resistance owing to the imPlied threat to some vital interest or self-interest,or the simPle desire to revert to the traditional Policies of the manual system desPite the Presence of a more Powerful comPuterised one.

DISCUSSION.

Schmidt,(Honeywell International Consultant), was Particularly concerned lest UK Management would accePt an MRP strategy and then starve the system of finished and comPonent stock in such a way as to force its oPeration as though it were a reactive manual system.He quoted an examPle of this haPPening in USA.Schmidt had the foresight to develoP a strong raPPort both with toP management Policy makers and the designers from the data Processing function.

In the Period after the imPlementation of MRP in Microswitch Division UK there was a recession.The marketin9 and manufacturin9 sites were 9eo9raPhically seParated by 350 miles and there was much friction relatin9 with the settin9 of stockin9 Policies then to ensure that there was not a reversion to a reactive system.Cuttin9 stocks was initially done to helP cash flow but this had a disProPortionate effect on customer delivery Performance and factory costs.Executives under Pressure of recession tried to take an extreme functional view within manufacturin9 or marketin9 and were reluctant to 9o for the trade-offs offered by the MRP/LRCP Processes.This crisis was overcome by moves made by the Forecastin9 Mana9er to set uP re9ular monthly Plannin9 workshoPs for toP executives from both locations to review Pro9ress in the sales forecast. This Process is defined in Fi9ure 13,the most Pertinent Part of which relates with the interactive se9uences undertaken by the whole corPorate Plannin9 team.

SECTION 4

LIMITATIONS OF THE RESEARCH.

SUMMARY

(a) All studies except 1 were actively involved in implementing MRP systems.

(b) Many process or jobshop oriented manufacturing environments are not likely to yield to MRP.How would one implement LRCP there?

(c) Would this consultancy method be of any validity in the Public sector?

DISCUSSION

All the organisations researched were in the Private sector.

All the companies studied in the research were manufacturing companies, making discrete Products in volume.No attempt was done to research firms (or divisions of firms) with non-discrete Products i.e. a 'Jobbing shop environment'.Computerised scheduling methods are much less appropriate in a 'Jobbing shop' as without definition of the Products there is no readily available engineering database and computerised Production scheduling would be very difficult.

It was seen that substantial resources would be needed to set up and manage with the system models Prescribed.The size of the businesses researched was such that they could

afford the overhead of implementing the management models described.

The businesses researched were all mature - none were at the early foundation entrepreneurial stage of development.All the businesses except West Midlands Manufacturer were UK Subsidiary companies of USA owned companies.

The central thrust of this research to develop a consultancy methodology for implementing managerial effectiveness through the use of management systems was seen to be an evolving methodology and development and refinement was achieved in each action research sequence reported.It may be surmised that much further development and refinement could be achieved if there were further research sequences until the methodology itself could be claimed to have matured and settled.

In two action research sequences only, (Chapter 6), on the finally offered methodology for consultancy was there completed both a diagnostic and action Phase of implementation and even with these it would have been beneficial to have done Post intervention audits,but a research Programme has to have an end somewhere!

SECTION 5

OPENINGS FOR OTHER RESEARCHERS.

This research started from a modest base in the literature.It may be recalled at the inception of the research Programme how little had been done on integrating the application of management systems in the search for managerial effectiveness,although during the Progress of this research it became Possible to cite other authors interested in this topic, (Train 1978,Murdick 1977,Murdick 1984,McGinnes 1984).This study thus opens up several avenues for further research.

(1) Could there be an improvement in the consultancy methodology based on the 3 systems - LRCP,MbO,MIS, and resource of OD?

(2) Could the existing findings of 'good Practice' be tested out in more generalised environments - for instance in the Public sector, Perhaps with a modified methodology?

(3) Could the management systems interface definition and implementation strategy outlined in Figure 12 be updated and made more acceptable in light of developments in theory and Practice and technology affecting each or any the four fields LRCP,MbO,MIS,OD? Can any further contingency factors be discovered and understood to overcome the Problems of replication Posed in this research.

(4) Could there be improvements in the implementation

separately of any of the LRCP,MbO,MIS approaches?

(5) Could guides be developed to help companies implement well known existing knowledge manifested in the simple and useful but underused ideas highlighted under conclusion 10?

SECTION 5

SUMMARY OF CONCLUSIONS.

CONCLUSION 1.

The aim of the research to find the interfaces between the 3 management systems and resource of Organisation Development had been achieved.The interpretation of this interface model would still be tricky to apply in manufacturing organisations outside the Honeywell Group, and even within the Group require substantial resources to achieve implementation, but the guide so defined reflected much Progress in our understanding of the dynamics and application of management systems.In the final draft of Figure 12 the researcher took into account as far as is reasonably Possible the theoretical developments relating with management systems up to the 1980's.

CONCLUSION 2.

The evidence suggests that Organisation Development may either be articulated by a dedicated 'Organisation Development' team or by an ad hoc group brought together to facilitate a particular organisational change.It may also include in its membership external consultant/academic members.These are likely to be selected both for the process skills they possess also necessary expert skills for handling problems of perceived organisational concern.There is no guaranteed path to successful change and Practitioners need to anticipate that OD Projects may be mismanaged by powerful groups within the organisation either wilfully and maliciously or through a lack of knowing what to expect of an OD group.There are useful guidelines (see Burke 1984,),which if adopted may be expected to improve the chances of success.An essential precondition for success relates with the political support of the ruling group in the organisation.Any attempt to use an OD Programme as a fifth column is fraught with danger.Ideally an OD group should report to a Corporate Planning Staff Team rather than to any individual executive.

CONCLUSION 3.

Use of the management models of this research are effective at Pinpointing areas of company concern.A

consultant, applying the methodology (of Figure 1) and linked with a Programme of interviews based on a diagonal slice of the organisation, requires much familiarity in the theory and use of the models and must not expect company executives to have a similar background knowledge.He needs to be a Persuasive communicator. He needs to work quickly if he is to establish credibility with the management of the host organisation and before any diagnosis he develops is out of date.

CONCLUSION 4.

"When a management consultant undertakes an assignment the normative management models developed in Chapters 2 and 3 of this research may be used either individually or collectively to illuminate a diagnosis of Points of company concern and Provide a base from which that may be shared within an acceptable theoretical framework by its executives.Following this sharing of the diagnosis an effective intervention may be mounted to close the gaps between actual Practice and one or more of the normative models."

Subject to some qualification discussed in Chapter 6 the evidence would suggest that the hypothesis above was valid for both the diagnosis and interventions of the Computer Manufacturer and Midland Components.

CONCLUSION 5

Implementing a computerised Material Requirements Planning system becomes a catalyst for forcing thought about corporate objectives and policies.

CONCLUSION 6

The evidence suggests that major difficulties in adopting an approach using LRCP seem to be the forming of an effective corporate planning support group, establishing a forecasting presence.

CONCLUSION 7.

The evidence of this study suggests that a common weakness in the planning an control of subsidiary companies by their foreign owned parent companies is manifested in over reliance on rigorous financial reporting - and that often distorts the business.With large companies mismatches in schedules between manufacturing and marketing are a common form of friction,not readily visible by financial analysis alone or yielding to financial remedies by themselves .(USA multi-nationals).A much more effective form of control appears to be provided by monitoring a

comprehensive corporate plan.

CONCLUSION 8.

The data of this research suggests that senior executives will often play lip-service to the principles of MbO, not wishing to be part of the formal managerial accountability.

CONCLUSION 9.

Computerised systems are still predominantly perceived as bookkeeping devices rather than aids to planning and control, so much of their potential capability is missed.

CONCLUSION 10.

There are several simple ideas, subsets of the management models of this research, developed in the literature, easy to implement, offering organisational improvement, yet they were missed by the management of two manufacturing companies of this action research :-

(a) Value analysis as determinant of activity and profit, cf Odiorne, G.S. (1972).

(b) Engineering approach in MIS system design.

CONCLUSION 11.

Success in implementing MRP can also have a disadvantage for a company - i.e the temptation to indulge in too wide a product range, leading to the erosion of profit.To reap the mileage out of management systems there is the need to use the analysis they make possible together with sound business judgement.This sentiment echoes McGinnes, (1984), in his article on the integration of analysis and intuition.

CONCLUSION 12.

Management systems offer very real and significant opportunities for organisational improvement,but the replication process of an already demonstrated implementation sequence may still run into pockets of stiff resistance owing to the implied threat to some vital interest or self-interest,or the simple desire to revert to the traditional policies of the manual system despite the presence of a more powerful computerised system.

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APPENDICES

APPENDIX 1

INTER-OFFICE CORRESPONDENCE.

From D.R.Ludlow - Director of Production.

To List.

Subject - MRP SYSTEM - MICROSWITCH DIVISION.

Gentlemen,

After the recent extremely useful meeting, I feel that it is important we record the decisions made on our implementation planning and future training:

(1) With the trial runs planned your group are required to bring the Management Group of Micro Division up to a level of understanding that will enable us to participate in analysing with you the results of the trial runs.

(2) The trials themselves,will be restricted to a small number of Product lines nominated by the Division, on a weekly basis.These runs will be updated by elements

judged by the Division, to be the parameters that the system will be required to handle.

(3) We have established that ,only when the Management Group of Micro Division agree a total acceptance of the proposed system,Will the education cycle for lower levels of staff commence.

(4) It must be clearly understood that no part of the MRP system will be employed on direct line Production,until I have been satisfied by each individual manager participating in the primary control functions,that the information and control levels are acceptable.

Please refer to this memo whenever there is any doubt about the Division's Policy on this subject.Any change to our Policy, will be in writing.

Regards, Derek.

APPENDIX 2

FEATURES OF INTEGRATED BILINGUALISM AS BASIS OF MANAGING MIS PROJECTS.

(1) COMMUNICATION COMPONENT.

The team members can totally share the problems of the project.They would have in depth knowledge for some aspects and a 'Pigeon English' capability of conversing with the experts.Key roles here are those of User Business Analyst,representing a user group and a Computer Systems Analyst representing Data Processing.For the organisational context of these roles refer to Figure 14.

(2) KNOWLEDGE COMPONENT.

There would be sufficient experts in the team to bring their knowledge to provide solutions to perceived problems.

(3) ACCOUNTABILITY COMPONENT.

The resource providers of the project will provide

an accountability link with their management,also those receiving expected benefit will be accountable for benefit accomplishment.The mechanism for this would be through a thorough based FEASIBILITY STUDY, followed at the end of the Project by a Post systems audit.

(4) AUTHORITY COMPONENT.

Team members together should have access to information and People affected by the Proposed system and authority to undertake audits of data and deliver training Programmes where that is shown to be necessary in the implementation Programme.

(5) RESOURCE COMPONENT.

Team members can expect to get allocation of adequate resources from both Data Processing Facility and User Groups to complete the Project.

APPENDIX 3

THE 11 STAGES OF DESIGN IN COMPUTER PROJECTS (ENGINEERING APPROACH).

These stages of design and the decision making requirements flowing from these stages form the natural framework for good teamwork and involvement between User Management and the Resource Providers (Data Processing). These are primarily of use when the design Process is from the beginning.When the design Process starts from the demonstration of an existing working Package then the emphasis will be to test the assumptions of the Package against the reality of the target business environment, and then Proceed through a respecification and validation Process.The differences in Protocol between original design and design from a Package base are relatively small,though the resources required to complete the Process are likely to be very significant.(There is no Point in reinventing the wheel)!.

(1) PUBLICATION OF THE FEASIBILITY STUDY.

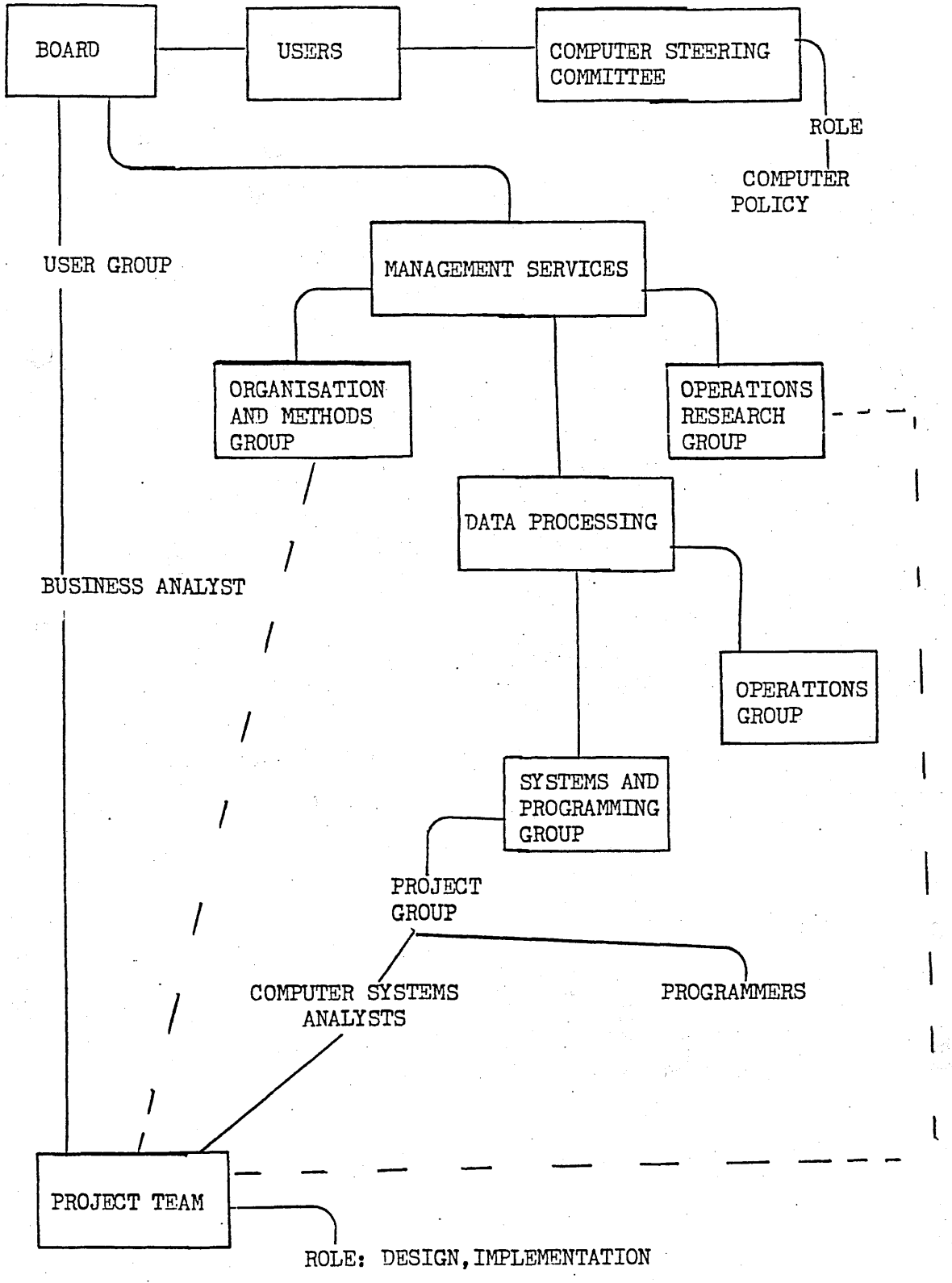
This is a formal Proposal to management concerning a major information system and the resources required to design and implement.TOP management are the audience.The

objective of a feasibility study is to get top management to approve the concepts of the system and commit the necessary resources.In some cases they will be asked to select alternative courses of action.

The scope of the feasibility study will usually cover hardware needs as well as information needs.

The feasibility study is the beginning of joint teamwork between User and Data Processing.Figure 14 offers an organisational context for this teamwork.There are two key roles inherent in this activity.The first is from a 'Business Analyst' appointed by the user himself,who is thoroughly knowledgeable about the user environment, Policies , objectives, Problems etc.The second role is the Computer Systems Analyst, who is expert in computer methods and possible packages for use in the application areas.He should,however,have 'Pigeon English' capability of relating businesswise with his counterpart the 'Business Analyst'. The feasibility study will jointly reflect activity of both 'Business Analyst' and 'Computer Systems Analyst'.The 'Business Analyst' may expect to develop most of the Section 'Expected Benefit'.Jointly they should contribute to the 'Economic Evaluation' and the 'Business Acceptability Evaluation' and to the other sections highlighted in the Process.

ORGANISATION CHART SHOWING JOINT USER/ DESIGNER PROJECT TEAM RELATIONSHIPS WITH DATA PROCESSING.



A feasibility study is published as a result of background analysis for a definition of the problem areas, opportunity areas within the organisation, and an evaluation of information requirements for the operation and control of the business. At the highest level it will generally be preceded by a functional analysis of the business as a whole to determine the relationship of information flows across the business.

(2) PUBLICATION OF THE COMPUTER SYSTEMS SPECIFICATION.

If management are satisfied of the need for a computer then this document will contain the formal proposal for computerising a main application. Top management are expected to approve the business philosophies and to determine the priority and worth of each proposed application.

(3) PUBLICATION OF THE DETAILED APPLICATION SPECIFICATION.

This is the formal proposal for the user of the system at his own level for his approval. Commonly this is done at the departmental level of management, and will contain very detailed specifications of report and screen layouts and their intended use.

(4) COMPLETION OF PROGRAM SPECIFICATIONS.

This is the formal technical design required by a programmer defined at the level of detail from which he can then code effectively without need for reference to user departments.

(5) TECHNICAL PROJECT PLANNING.

This includes the scheduling and monitoring of the design/test/documentation phase for all programs.The user customer is generally involved at the phase of testing and will contribute to provision of realistic test data and the evaluation of results.The documentation of the systems should be complete before the system goes into production,otherwise business risk is considerably increased.

(6) DATA CAPTURE AND AUDIT.

The layman rarely has appreciation of the accuracy needed on computerised files.These may be very costly to create.An audit in the early stages of file creation generally highlights error content in time for corrective action to be taken.

(7) MANAGEMENT INVOLVEMENT AND TRAINING.

Although management should have been involved in the specification stage of the system,it is unlikely that

they will have visualised the full implications of working with hard copy from the computer prints.They will need to practise in this together with personnel from the DP function.The commitment of managerial time to this activity is essential and often difficult to negotiate.

(8) CLERICAL INVOLVEMENT AND TRAINING.

A computerised system causes considerable changes in the structure and content of clerical jobs.This requires the writing of effective new operating procedures and training for those involved.

(9) IMPLEMENTATION PLANNING FOR THE USER.

All phases of implementation of a computerised system need detailed planning for their effective coordination.PERT charts assist in defining resources, sequence, responsibilities, project status, visibility to Top Management.

(10) SYSTEM AUDIT AND REVIEW,CHARGE OUT PROCEDURES.

This step is required to answer the following questions:-

(a) Does the system perform as per the prediction in the specification?

(b)Are the cost effectiveness implications accepted by the

user departments?

If this step is well done then the organisation will learn how to use the Data Processing function beter.If this step is ignored then trivial applications will continue to be implemented without challenge from management;and with the lack of effectiveness.

(11) MAINTENANCE PROCEDURE AND THE MONITORING OF ERROR RATES IN DATA.

Business systems are subject to change and this implies change to the computerised systems.Computer systems can be expensive to change and with many unforseen consequences. The disciplines by which maintenance is requested;authorised and controlled need very clear and formal definition.